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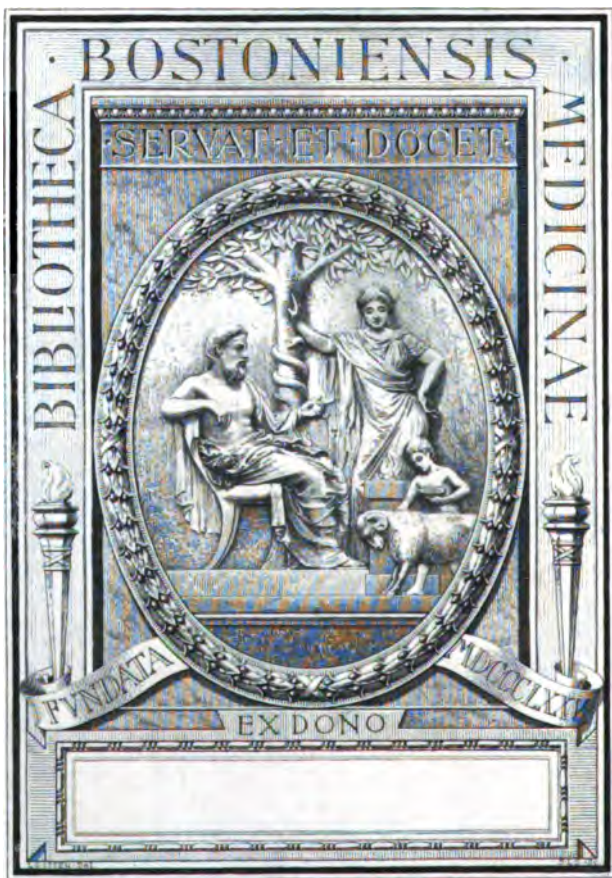
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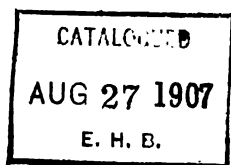
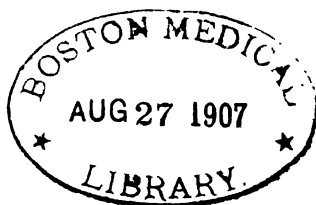
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EDITED BY
THOMAS KIRKPATRICK MONRO, M.D.,
AND
GEORGE HENRY EDINGTON, M.D.,
FOR THE
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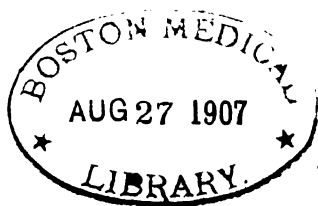
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THE
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ORIGINAL ARTICLES.

POST-GRADUATE DEMONSTRATION IN WARD I,
GLASGOW ROYAL INFIRMARY, 3RD MAY, 1906.

By JAMES W. ALLAN, M.B., C.M.,
Physician, Glasgow Royal Infirmary.

I. Thoracic aneurysm.

The first patient I have to bring under your notice is this man, William M., aged 60, who was admitted to the Royal Infirmary on 31st March this year. He is suffering from aortic aneurysm. The following report of the case, by my resident assistant, Dr. Macgregor, is taken from the Ward Journal:—

"William M., aged 60 years, was admitted on 31st March, 1906, complaining of pain in chest of twelve weeks' duration. Patient works as a lorryman and has to lift heavy weights. About two years ago he attempted to aid in lifting a box of machinery, weighing about 8 cwt., and in the act 'racked' himself, *i.e.*, was taken with a sudden pain in the left side about the lumbar region, and about two days after he spat up a few mouthfuls of blood. There had been no hæmoptysis previous, nor has there been any since. He went about work as usual up till twelve weeks ago, when weakness and pain in

chest made him cease work. The latter has been the main symptom, and has been increasing over past four months. At first it was only a sensation of tightness in chest, but soon developed into a definite pain, localising itself more and more to the right chest, round and to the inside of the right nipple, and equally acutely felt over the shoulder blade. The pain is usually worse during the night, and, while it is not felt during ordinary light exercise, any effort to return to his work has at once to be given up. Too long remaining in any posture, whether up or in bed, induces the pain, and it is usually relieved by any simple alteration in decubitus; for instance, at first he could not lie on his left side at all, but can do so easily now, but not for any length of time. A little exercise is antagonistic to the pain. The character of the pain has varied from a dull ache at start to a sharp acute pain coming on gradually, increasing to an unbearable degree unless relieved as above, and then dying away gradually. There are no shooting or lancinating pains, and no boring pain associated.

"Shortness of breath became evident about twelve months ago, and interfered with every heavy work, but never incapacitated him at his work, even lately.

"Palpitation was noticed about same time and under same conditions, but was not thought worthy of any attention. In fact, he feels he could have continued work easily but for the pain.

"Weakness was slight, but he noticed a failure of strength some time before he left off work, and he is conscious of a very appreciable loss of vigour since lying down. He has been in bed for six weeks in all, and lately only partially for six weeks, and has felt much improved, although the pain has not much abated.

"For twelve to fifteen years he has had a chronic cough and spit, rather recurrent than constant, and usually present in winter time. No asthmatic or paroxysmal attacks, and no dyspnoea or well-marked breathlessness up till eighteen months ago, and even then, and since, the cough has been rather less in evidence than usual. There has been no swelling of feet; no alteration in voice noticed by patient or friends; no hæmoptysis other than mentioned.

"Works as a lorryman—twenty years with Caledonian Company. Work is very heavy and requires great physical strength, and offers constant inducement for over-exertion. Was a moderate drinker; two glasses of whisky a day and a pint of beer or two a day—this was his maximum

quantity. Has had seven children: three died in infancy, others well.

“Present condition.—Weight as a rule, 12 stones. Is a well built man, but is now rather thin and atonic. Some commencing arcus senilis. Marked dilatation of venules of nose and cheeks, with some degree of cyanosis. At present he has no distress, pain being gone, and he assumes any position with ease, but prefers to lie on right side; lying on left side induces palpitation. No œdema anywhere; temperature normal; no dyspnoea.

“Circulation.—Pulses: left radial is somewhat smaller in volume than right, but they are equal in time. Marked degree of atheroma in the superficial vessels, notably the brachials; hardening and tortuosity. Moderate visible pulsation in neck. There is a visible tremor of head with each heart beat. No capillary pulse.

“Chest.—No visible abnormal pulsation. Apex beat visible in sixth space—4 inches from mid line. Chest movements are symmetrical, and there is symmetry of shape. No dilated veins in chest wall.

“Palpation.—Apex beat definite and forcible. Closure of aortic valves can be felt by the hand as a sharp slap over the aortic area. Pulsation felt on deep pressure in suprasternal notch.

“Percussion.—Upper cardiac border—fifth rib; right—right margin of sternum; left—nipple line. Above the base of the heart there is an area of dullness whose right border, defined by heavy percussion, is 3 inches to right of mid line and 2 inches to left. No pulsation; no tenderness. Transverse measurement of percussion dullness, 5 inches. Upper liver dullness lies 4 inches below nipple.

“Auscultation.—At apex first sound is accompanied by a short systolic whiff, merging out of and partly replacing first sound, which is rather faint. Second sound at apex is loud and ringing.

“Over aortic area the valvular systolic murmur is distinct, but not so loud as over apex, and not (?) audible in carotids.

“The aortic sound is loud and widely heard over chest, and over the dull area, or a trifle beyond it, it seems to be louder than over other parts of the chest. It is well heard over right lower angle of scapula, more so than on left side.

“Over the aortic area itself the sound is ringing and bell-like in quality, very sharply closed and abrupt, without any diastolic whiff. No reduplication; pulmonic sound is rather faint. No bruit heard over aneurysmal dullness.

"Respiratory murmur is equal on both sides. In chest the respiratory murmur is accompanied by various and variable dry sounds, with some prolongation of expiration. No basal râles. Tracheal tugging (?).

"*Pupils.*—No pupillary phenomena of aneurysm. No laryngeal symptoms.

"Teeth mostly carious; tongue foul; appetite good; bowels regular; urine free from albumen.

"Skiagraph taken on 4th April, and drawing made.

"*Note on 6th April.*—Pain is now very infrequent and trifling; cardiac action is quieter; pulse slowed down from 100 to 80; and urinary flow increased.

"*7th April.*—5 grs. of potassium iodide three times a day.

"*9th April.*—10 grs. of potassium iodide three times a day."

The dose of iodide was raised to 15 grs. thrice daily, and then to 20 grs. thrice daily.

I am indebted to Dr. Riddell for the following note regarding the examination of the aneurysm by means of the *x*-rays, and the drawings of same made by the orthodiagraph, which drawings I now place in your hands:—

ROYAL INFIRMARY,
GLASGOW, 30th April, 1906.

DEAR DR. ALLAN,—The patient, Wm. M., shows a thoracic aneurysm, the transverse measurement immediately above the heart being about twice the normal. It is distinguished from a solid tumour in that it pulsates, the pulsations being expansile in character. The exact measurements are given in the accompanying diagrams. They are made by means of the orthodiagraph. This is an instrument so arranged that the screen where the drawing is made and the tube from which the *x*-rays emanate are placed directly opposite each other, and can be moved in any direction together. The patient is interposed between the tube and the screen, the result being that when the centre of the screen is at the edge of the shadow under observation the part from which the *x*-rays emanate is directly opposite the edge, too—hence exact measurements can be made.

J. R. RIDDELL.

The orthodiagraph promises to be a great help to the clinician by enabling him to obtain definite measurements of an aneurysm at successive periods, and so judging whether the treatment is producing a satisfactory effect or not. It will be of special value in these cases of deep-seated aneurysm which are not amenable to the ordinary methods of physical

examination. In such cases palpation and superficial inspection give no results, and it is only when the tumour approaches the surface that percussion is available.

II. *Hodgkin's disease.*

The next case I have to show you is this patient, Neil M'D., suffering from pseudo-leukæmia or Hodgkin's disease.

As you are aware, the essential points in the diagnosis of this disease are (1) enlargement of the lymphatic glands, (2) enlargement of the spleen, and (3) a practically normal hæmoanalysis at the onset of the disease, with a progressive diminution of the erythrocytes and hæmoglobin as the disease advances. Leucocytosis is not a feature of the malady; it may occur, but it is to be regarded as accidental, *i.e.*, due to the occurrence of some intercurrent mischief, such as an attack of pneumonia.

The following report of the case is from the Journal notes by Dr. Macgregor, house physician:—

"Admitted on 13th January, 1906—transferred from Dr. Barlow's wards. Complaint is weakness, sweating, and a swelling in the right parotid region. For past eighteen months the patient has felt himself 'going backwards,' *i.e.*, getting weaker and feeling just not quite up to his work for some time; at first would feel tired and weary at night and used to go to bed very early, and felt himself in an unusual state for a man always in robust health and able to do a good day's work. He works as a lorryman and had much lifting of heavy bags of flour, which began more and more to tax his energies, and at times he would feel quite done up and short of breath on exertion. This became more and more frequent and more and more noticeable until at length, about eight weeks ago, he had not sufficient breath to do a light day's work, so that from sheer weakness and shortness of breath he was obliged to remain at home, though not in bed. Along with the breathlessness he had some rapidity of cardiac action. Appetite remained good all through, and only began to fail when weakness was extreme. There have been no gastro-intestinal symptoms of any kind. Headaches not a feature. There was some swelling of the feet during past three weeks when he went about the house; this would be almost gone in the morning.

"He had no tendency to fainting turns, but noticed that getting erect after lacing his boots, would be accompanied by a giddiness and stars before the eyes.

"About two years ago a small lump appeared over the

preparotid region, movable and hard, was followed by a second, and a gradual increase took place, the whole mass growing at a uniform rate all along: some of the glands in posterior triangle began to swell about nine months ago, the whole hard and painless. He took little notice of them. Noticed no other swelling about the body.

"Has worked as a lorryman and as a carter, and has had previously robust health. Takes a glass of whisky as often as he can afford it, which is not every day, and seldom goes to excess. Is married and has four healthy children, oldest is 9 and youngest is not 3. Is inclined to blame over-exertion for his present illness.

"Mother æt. 60 and well, father died æt. 40, 'accident.' No history of tuberculosis or rheumatism.

"Has been laid up lately for five weeks, with some improvement, and removed to a country place to see if the air and light work would benefit him, but was only able to work three shifts.

"Was sent to infirmary on recommendation of doctor.

"*Present condition.*—Patient is a man of large physique and excellent development, but has now considerable pallor and shrinking of tissues, has lost 2 stones in weight since illness began. . . . Temperature is normal. . . . No œdema of feet at present; has been in bed for some days past.

"*Glands.*—Large irregular mass occupies right parotid and submaxillary regions, carrying out the ear and making it project a little, and extending behind to the mastoid and into the occipital region of neck. As a mass it is very firmly bound down to the deep structures.

"Its surface is hard and nodular, some of the component individual nodules round the margin being still movable on the mass. Neither pain nor tenderness, no fluctuation at any part, rate of growth uniform, no recent more rapid increase, no fixture of jaw; some redness of skin due to rubbing.

"*Glandulæ concatenatæ* enlarged down to clavicle, glands about the size of large beans, movable under skin and on deep tissues, no pain or tenderness; similarly but to less extent on left side. (Occipital glands cannot be felt.) Axillary glands, both sides, somewhat similar in character; likewise inguinal and femoral glands.

"*Spleen.*—Can be easily felt extending into abdomen for about 3 inches beyond the costal margin. . . . Surface is smooth, and edge is plainly felt and continuous, notch not evident. No tenderness or pain. Liver 4 inches in nipple line.

Other organs are in normal state. Bowels regular and digestion excellent; tongue clean.

"*Heart.*—No palpable apex beat, and cardiac area is very small. Sounds are pure but rather toneless. Pulse regular, 92 per minute, but rather soft and relaxed. Lungs healthy to physical examination. Slight cough and spit."

You will perceive from the chart which I now hand you, that this man's temperature has been very irregular. In the period from 13th January to 4th April it varied from 97° F. to 103° F.

On the suggestion of my clinical assistant, Dr. John Henderson, this man was put on *x-ray* treatment. He was subjected to it daily from 14th January to 3rd April.

The following hæmanalyses were made by Dr. Henderson:—

Date.	Hæmoglobin.	Blood Corpuscles.	
		Red.	White.
14th Jan., . .	60 per cent.	2,750,000	5,200
22nd „ . .	60 per cent.	2,800,000	6,000
29th „ . .	60 per cent.	2,420,000	6,500
14th Feb., . .	60 per cent.	3,500,000	7,000
28th „ . .	70 per cent.	3,200,000	5,500
7th Mar., . .	70 per cent.	3,250,000	6,000
16th „ . .	75 per cent.	3,150,000	5,000

Patient was treated by electricity alone. He got no drugs. No therapeutic agent was employed except the *x-rays*.

An improvement took place both as regards glands and blood condition; and he expressed himself as feeling better.

On 18th January Dr. Ballantyne examined the eyes and found no hæmorrhage in the fundus of the organs; but the vessels of the retina, especially the veins, were pale, a condition such as is found in anæmia.

He was dismissed on 5th April, 1906, and readmitted on 12th April, 1906.

Dr. Macgregor's note (12th April).—"Readmitted. Seems in fair condition. Was able to walk 3 miles to station. Some œdema still of feet. Glands much in same condition. Splenic measurements unaltered."

The *x-ray*-treatment has been resumed now that the patient has returned to the ward.

The degree and the permanence of the improvement under this treatment remain to be seen. Complaint of epigastric pain makes me apprehensive of some internal glandular development.

As to the diagnosis of this case, I think it rests firmly on the three points—(1) enlargement of the lymphatic glands, (2) enlargement of the spleen, and (3) the character of the hæmanalysis (the absence of leucocytosis; the maximum count of white corpuscles having been 7,000 per c.mm.).

There is sometimes difficulty in determining between the disease now under consideration (Hodgkin's disease or pseudo-leukæmia) and some other affections.

In lymphatic leukæmia we have enlargement of the glands, and there may be lymphoid developments in the spleen and elsewhere, but there is, in addition, an enormous increase in the lymphocytes.

In spleno-medullary leukæmia there is enlargement of the spleen, but the blood shows great increase of leucocytes, the abundance of myelocytes derived from bone marrow being particularly characteristic.

In splenic anæmia we have big spleen, but without enlargement of the lymphatic glands. The hæmanalysis gives a low count of white corpuscles, indeed, in many cases a pronounced leucopenia; while normoblasts and megaloblasts may be found.

It will be seen from the foregoing that hæmanalysis is the essential step in determining the diagnosis of those diseases. Two other affections may give rise to phenomena which may lead to a false diagnosis of Hodgkin's disease, viz., tubercle and syphilis.

There is no tubercular history in this man's family, there has been no suppuration of the glands, and there is no evidence of tubercular disease in the lungs. Patient denies venereal disease.

As you are aware, all the lymphatic glands in the body are liable to become affected in this disease, and when the intra-thoracic and intra-abdominal glands enlarge, pressure signs make themselves manifest—such as pain, dysphagia, dyspnoea, and œdema.

So far, however, there have been no striking pressure signs, unless we are to attribute his breathlessness to this cause (? enlargement of peribronchial glands), and possibly also his loss of weight (? pressure on thoracic duct), and the epigastric pain (? enlargement of internal glands).

III. *Two cases of aortic valvular disease.*

I have now to call your attention for a few minutes to two cases of cardiac disease. Time will not permit me to enter

into details. But I may say briefly (before taking you to the bedside), both of these men are suffering from that form of cardiac disease which most frequently causes sudden death, namely, aortic obstruction and regurgitation.

The first man whom I shall show you is Joseph S. He was admitted in June last, went out for three or four weeks, and was readmitted on 22nd January.

On his first admission this man was suffering from œdema of the hands, fore-arms, feet, legs, and thighs: slight in the thighs. He also had ascites. He was treated with calomel and jalap, ammonia, digitalis, diuretin.

Second admission.—Dr. Macgregor withdrew 450 oz. of fluid from the abdomen. He was treated with acetate of potash, infusion of scopolarium, spirit of nitrous ether, and Guy's pills (which contain mercury, squill, and digitalis). He also got jalap.

On 19th February 140 oz. were withdrawn, and on 12th March 240 oz. were removed.

Shortly after last withdrawal of fluid the patient had pretty copious diuresis, up to 100 oz. in the day: probably due to the Guy's pill (?) aided by the removal of fluid. Latterly he had been getting a full Guy's pill morning and evening. This combination of mercury, squill, and digitalis is one which should not be neglected in the treatment of cardiac dropsy.

If you will examine the patient for yourselves you will find the apex beat down and out, and the double bruit characteristic of aortic obstruction and regurgitation.

Patient is not so breathless as formerly.

The second case is that of Thomas J., aged 52, who was admitted to the Glasgow Royal Infirmary on 28th March of this year.

This man has been a soldier. Had "rheumatics" before going to India, but it seems his heart was pronounced to be unaffected. Went to India in 1879. Had fever, ague, and dysentery.

Two years ago he was laid up with bronchitis and pleurisy. Has had breathlessness since then, but not confined to bed. For last two years has had gripping pain over the heart, shooting down left arm. Has had spasmodic attacks since coming into the ward (after being allowed up).

He was first put on infusion of digitalis, and later on extract of *cactus grandiflorus*.

Apply the stethoscope and you will hear the double bruit caused by aortic obstruction and regurgitation.

IV. *Aneurysm of the ascending portion of the arch of the aorta.*

Lastly, I have to bring before you this man, Alexander S., with aneurysm of the arch of the aorta.

He was first admitted to the ward on 8th March, 1905, and subsequently on 2nd June of that year and 19th January of the present year.

He was shown to the Glasgow Medico-Chirurgical Society on 17th March, 1905 (*vide Glasgow Medical Journal*, November, 1905, p. 374).

This man's history is a typical one for aneurysm. By trade he is a tailor, but he has also been a soldier in India, when he suffered from malaria, had fatiguing marches, and, most important of all, he has had syphilis (chancre and rash). For many years he took a good deal of drink. Here we have well recognised factors in the causation of aneurysm—malaria, fatigues, syphilis, and alcohol.

The following *résumé* and notes were made by Dr. Macgregor, house physician:—

“Alexander S., æt. 39. . . . Thoracic aneurysm.

“*Summary of history from Journal* (p. 387).—Occupation, tailor. In India from 1887 to 1893, when had malaria several times; fatiguing marches; was much reduced in health. Syphilis (chancre and rash) sixteen years ago. Considerable drinker for many years. Smoked half an ounce of tobacco weekly.

“Had cough without spit for seven or eight years, and for past year had some spitting of blood (infrequent and just a trace).

“Beyond some giddiness on sudden exertion has had no symptoms.

“About Christmas, 1904, he noticed a pulsating swelling under the collar bone on right side; had some pain over it and some dull aching round the right scapula, specially on movement, some breathlessness, and an occasional feeling of choking; otherwise in good health. Was dismissed on 2nd July in much the same condition: during his stay some dysphagia is mentioned, but this is now absent.

“The size of the tumour did not alter during residence, and measured about 3 inches by 3½ inches, the latter in vertical diameter.

“Patient reported himself on 2nd September, 1905, when tumour was reported as considerably shrunken and with a smaller pulsating area: general condition excellent.

"Dates of casts.—10th April, 1905; 10th May; 10th June; 10th July; 24th December.

"These casts show that within a period of nine months the tumour has shrunk from a prominent protrusion—3 inches by $3\frac{1}{2}$ inches of pulsating area—till it is now flush almost with chest wall, and area of pulsation could be covered with a shilling; no visible pulsation now.

"Patient was readmitted on 16th January owing to increasing numbness and loss of power in right arm and hand, which made him unable to do his work as a tailor. This loss of power and sensation was most marked when patient reported himself some ten days before admission, when there was very distinct loss of power in the area generally tested by resistance to movement, but specially was patient unable to extend the flexed fingers or to bend the wrist backwards—a degree of wrist-drop. There was also a numbness running from the inner condyle of humerus along the course of the ulnar nerve, affecting little finger and ulnar half of ring finger, and ulnar side of fore-arm.

"On admission, patient's condition much as above. Can go about without breathlessness, has no aphonia or alteration in or huskiness of voice; no dysphagia at present; no tracheal tugging; pain of a dull character over the tumour is present, as also posteriorly about the scapular spine on same side.

"There are present marked dilatation of veins, especially the lateral veins of chest wall, with considerable dilatation of the venules, especially over the front of the chest. . . .

"Pulses are unequal though simultaneous. Right has a fuller volume; left, smaller in amplitude, and with a more rounded character of tracing, with some loss of feature. . . .

"No distension of veins of arm.

"*Chest.*—No pulsation can be seen. Considerable asymmetry of chest. Anterior part of chest on right side is thrown forward into a definite projection involving third, fourth, and fifth ribs in the right vertical nipple line. Movement is much restricted on right side; site of former pulsating tumour is almost level now; and area of definite expansile pulsation can be covered by a shilling; the area of absolute dulness corresponding could be covered by a half-crown: in the second right intercostal space just to right of the right sternal margin. No thrill.

"Faint systolic bruit heard over tumour, but no regurgitant murmur and no intonation of aortic second sound. Apex beat is in the sixth space, $2\frac{3}{4}$ inches from the middle line, faintly

visible, and palpable as a somewhat diffuse heave of chest wall of moderate force. First sound is not intoned, and is accompanied by a faint systolic bruit. Aortic second sound is loud and distinct, but has no booming character and is pure. Percussion areas indicated on diagram.

"Respiratory murmur diminished all over right chest."

On 30th April, patient appeared in the ward and reported that he had had vomiting and a dead burning pain over breast bone.

I must not enter into further details regarding this case. The patient has been under treatment in the wards three times, and in the intervals has reported himself.

A series of casts of the front of the chest were taken in the ward, and these I now submit to your observation.

As you have been told, he was treated with iodide of potassium, 25 grs. being the maximum dose he got.

Of course he had a quiet life in the ward. He was not starved, but got light diet.

Although it spoils any chances of recovery which he may have, patient has insisted on resuming work as a tailor, his plea being necessity. He cannot afford to remain under treatment in hospital continuously.

It is much to be regretted, for there has been a change in his condition which, we might hope, pointed in the direction of recovery.

I have to express thanks to my late house physician, Dr. Macgregor; to my present house physician, Dr. MacCallum; and to Miss Lindsay and the other nurses for their kind assistance.

THE SURGICAL ASPECT OF ANURIA.

By CHARLES GREENE CUMSTON, M.D., BOSTON, MASS.,

Member of the American Urological Association; Corresponding Member of the Urological Association of France, &c.

By the word anuria is understood that condition in which no urine is formed in the kidney—in other words, there is a complete absence of the secretion. Anuria following abdominal operations occasionally arises, but does not last more than forty-eight hours, although one case has been recorded in which there was suppression of the urinary secretion for twenty-five days. In this case the subject appears to have remained perfectly well throughout. The urine then began to come away, and gradually attained the normal amount. There are other cases, however, where anuria of several days' duration sets up phenomena met with in uræmia, and it is quite true that in certain pathologic conditions, resulting in the development of deleterious substances in the blood, the patient may be in a very serious condition. These substances are the urinary toxins, combined with the biliary constituents and CO_2 . Understood in the strictest sense, anuria occurs only in functional disturbances of the kidney, or in the various renal affections, but in a broader sense one can include under this name all those abnormal conditions in which the urine is prevented from reaching the bladder. Thus we have obstruction arising in the ureter or renal pelvis, giving rise to suppression, and which may be classed among cases of anuria. True anuria arises when the arterial blood no longer reaches the renal gland; or the escape of the urine secreted in the glomeruli is prevented by some obstacle met with along the genito-urinary tract.

I would like here to outline a classification of conditions giving rise to various forms of anuria, with the hope that the subject may be made as simple as possible. I will first consider those cases resulting from a reflex action; here one is dealing with anuria produced by some irritation in another organ, and by way of the nerves the reflex action is carried to the kidney, and results in suppression of secretion. To this class belongs the anuria of hysteria, and toxic anuria arising from the intestinal canal. There are also instances of suppression of the urine resulting from an irritation arising in one kidney, which irritation, by what is probably a reflex

action, prevents the secretion of urine in the healthy organ as well. According to Cohnheim, the anuria of pregnancy should also be considered as of reflex nature, and may be traced back to contraction of the renal arteries, but I believe that in these cases an inflammatory process is really at the bottom. As an intermediary or transitional class we should include those cases of anuria which result from an obstruction at some part of the urinary canal, as occurs in certain infectious processes. Here, in all probability, the circulation becomes arrested in the kidney, either as the result of cardiac weakness, or on account of an increased density of the blood; but the urinary canals of the kidney are usually filled with small plugs or casts, the process being in reality an obstructive one. The second group includes the anuria met with in nephritis, in renal calculi, and in torsion or compression of the ureter; and these cases represent instances of obstruction in the urinary canals. We will now consider the first group, namely, *reflex anuria*.

Hysterical anuria.—It is a well known fact that the secretion of urine is directly under the control of the nervous system by means of the vaso-motor system. By irritation of the vascular centre in the medulla oblongata one can directly influence the amount of urine secreted by the renal parenchyma. By electrical stimulation, or by inducing an accumulation of CO_2 in the blood, one may succeed, if the irritant is of sufficient strength, in completely stopping the secretion of urine. The point, however, which is by far the most important for the understanding of the production of hysterical anuria, is the resulting complete anuria by reflex which arises during irritation of a sensory nerve. In their experiments, Cohnheim and Roy, by stimulation of the central end of a cut sciatic nerve, successfully produced an extreme contraction of the renal vessels with a diminution in the size of the gland. It is very important to note, as these authorities have shown, that the effect of the irritation was of considerably longer duration than the stimulation. These experimental demonstrations form the foundation of the hypothesis of reflex anuria in the human subject. The question now arises as to how far clinical observations correspond with experiments undertaken on animals, and whether or not it can be demonstrated as a certainty that cases of purely nervous anuria can be met with when the renal glands are absolutely normal. I feel that this may be answered in the affirmative; and it is here that cases of hysterical anuria belong. This form usually arises in neurotic individuals, or in diseases or anomalies in

the female genital apparatus. The splanchnic nerve becomes irritated; from this arises a cramp-like contraction of the renal arteries, and the flow of blood to the kidney completely ceases. Hysteria, which represents a perverted reaction of the nervous system, may give rise to changes in the urine due entirely to nervous influence. The polyuria which frequently follows attacks of hysteria is well known, and, although less frequent, oliguria may also occur and be so marked that anuria is reached. Pitres says in his clinical lectures on anuria that the patients succumb to uræmia after a certain time, which may vary from several hours to five or six days on an average; but in hysterical subjects, on the contrary, the anuria may persist for weeks without having any apparent effect on the general health and without causing any danger to life.

If one carefully studies the literature of the subject, it will at once become evident that, *if vomiting and diarrhœa be excluded*, hysterical patients never show symptoms of uræmia. This has induced several authorities to assume that there exists a vicarious secretion of urea by way of the stomach, and Charcot and others observed that, in absolute anuria, vicarious vomiting arose, the vomitus containing a relatively large amount of urea. The quantity of urea in the vomitus increased when the urinary secretion was suppressed; and, consequently, it becomes evident that the stomach possesses power to eliminate a certain portion of the urea accumulated in the blood in cases of anuria. The number of such cases, however, is small, and there are probably other ways in which the urea is eliminated. That a vicarious secretion of urea may take place in the organism there is no doubt, as the experiments of Claude Bernard and Barresuil show. They demonstrated the presence of urea in the blood after removal of the kidneys, but after profuse vomiting had occurred it could no longer be discovered. This phenomenon may be explained by the secretion of urea into the intestine, and its removal partly by vomiting and partly by transformation into carbonic acid ammonia. Hammond and Marchand, as well as Oppler, found the presence of urea in the vomitus in their experiments.

One must be extremely careful in making a diagnosis of anuria when one suspects it is due to hysteria. For instance, in one case, a girl, 24 years of age, occasionally presented an oliguria, and once absolute uræmia lasting for two weeks and accompanied with violent vomiting. The patient was carefully watched, and it was soon discovered

that she carried a small pitcher with her, which she kept wrapped up in a handkerchief. This pitcher had a very strong odour of urine. When she thought that she was unobserved, she would pour small quantities of urine out of the window, and it was also found that she drank some of it and then vomited.

We now come to the consideration of those cases where the anuria is proven to be purely nervous in origin and the kidneys perfectly healthy, and here again I would refer to Charcot, who published a very well observed instance. The patient presented evidences of severe hysteria; there were convulsions, hemiplegia and hemianæsthesia, and an oliguria, which had been present for several months, with periods of absolute anuria which lasted 11 days. During the whole time small amounts of urea were detected in the vomitus. After a deep chloroform narcosis, given for the purpose of breaking up adhesions giving rise to contracted joints, the urine secreted was found normal. This case shows that the long duration of an anuria proves nothing so far as its purely nervous nature is concerned. The case was in all probability one of angio-spastic anuria; experiments on animals demonstrate well the curative influence of the relaxing action of chloroform narcosis on the vascular spasm. If, then, a nervous anuria really exists, it is probable that it is quite similar to the experimental reflex variety, and results from sensory irritation. This theory appears more or less sound from the two following reported cases. Israel had under his care a woman, aged 24, who had stenosis of the external os, uterine catarrh, and constant uterine pain which was increased at each menstruation. For six months oliguria had been present, accompanied by profuse vomiting and occasional anuria. After bilateral incision of the cervix the menstruation following was painless, and the oliguria and anuria disappeared. A similar condition was found in a case reported by McBride and Mann, of a woman having intestinal irritation, uterine hypertrophy, and a deep bilateral laceration of the cervix, and who usually presented an anuria of many hours' duration during menstruation. Injections of morphine did away with the anuria each time they were given; while an operation for the repair of the cervix had a similar effect.

Toxic anuria as it occurs occasionally in chronic lead poisoning can also be traced to a reflex contraction of the renal blood-vessels, especially the arteries, but, under these circumstances oliguria is more frequently present than anuria. The same may be said of oxalic acid and cantharides poisoning.

We now come to the question of reflex anuria arising from an occlusion of one ureter, and it is of importance to ascertain if sensory irritation affecting one kidney or one ureter is capable of suppressing urinary secretion by reflex action. It was already known as far back as Morgagni that in obstruction of one ureter the functions of the opposite kidney might sometimes be suspended, and this great pathologist was led to say, "Nam etsi non semper, haud rarissime tamen contingit, ut uno affecto rene alter quoque in consensum trahatur." Clinically, this form of reflex anuria has been repeatedly met with, and, as far as the correctness of the explanation is concerned, it has been proved by physiological experiments that, under certain conditions, an inhibitory influence upon the secretion of one kidney by the other can occur. It was long ago demonstrated by Claude Bernard that, by irritation of the nerves entering the hilum of the kidney, anæmia and anuria could be produced, while in contradiction to this, Cohnheim and Roy showed that by irritating the renal nerves a marked hyperæmic tumefaction of the organ, with increased urinary secretion, resulted.

It is only recently, however, that investigations have demonstrated the paths over which the vaso-motor nerve fibres run; and this is of extreme interest from our point of view. Masius, by making a section of the vagus in the neck of rabbits and dogs, whether on the right or left side, could by irritation of the peripheral end produce suppression of urine in both kidneys. This phenomenon also took place when the sympathetic was cut in the neck after section of the vagi, and the cervical medulla and the central end irritated. From this there resulted a depression in the vaso-constrictor nerve fibres of the kidney, partly in the splanchnic, partly in the cervical vagi, and on account of this dividing course of the vaso-constrictors in the cervical vagi also, it immediately becomes obvious that, in a perfectly simple and clear manner, one may explain the changes observed in the cardiac action as well as the existing anuria. This has also been proven clinically. For many English surgeons, however, the reality of reflex anuria resulting from functional obstruction of one kidney does not appear at all likely, and they only believe it possible when some serious lesion is present in the second kidney. Legueu rejects the possibility of a reflex action when a renal lesion exists on one side only, or when a calculus becomes lodged in a ureter; and he asserts that in calculous anuria from obstruction of one ureter, the kidney on the other side, if it fails to carry out its functions, does so because it is,

or has been, the seat of some lesion. Demons and Pousson admit that anuria arising in cases of obstruction from stone in one ureter may occur, but it must be extremely rare; and, presumably, a diseased kidney also exists, because it is only under these circumstances that the renal function could be interfered with in a reflex way.

Israel also comes to the conclusion that reflex anuria due to a one-sided obstruction of the ureter usually only takes place when the opposite kidney is already the seat of disease. The reflex interference of the renal function takes place, according to Guyon, from an insufficient blood supply, due to irritation of the vaso-constrictors, and since he maintains that a diseased kidney requires a greater amount of blood than a healthy one, they naturally suffer more markedly under a reflex irritation than when normal.

Animal experiments carried out by Gotze would appear, however, to be in favour of some reflex influence brought to bear on the healthy kidney, which may impair the latter's functions in cases of obstruction of one ureter by a calculus. In dogs who have passed normal urine, the capacity of each kidney was determined quantitatively by inserting a glass tube into each ureter. Salt solution was then injected into one ureter, which increased the pressure of the respective kidney, and immediately resulted in a decrease in the secretions of the kidney on the opposite side, and when the pressure was kept up resulted in complete suppression of urinary secretion. The same result was obtained when artificial obstruction of one ureter was produced. Increase of intrarenal pressure of one kidney constantly resulted in arresting the secretion in the opposite gland.

From the above it would appear that those who have criticised the theory of reflex suppression of urinary secretion have certainly the merit of having disproven a large number of cases which have been reported as reflex anuria, but, nevertheless, the reflex process which arises in connection with renal operations must still be more generally considered than it has been in the past. This relates chiefly to the immediate results on the functions of the remaining kidney after nephrectomy. The physiological process after this operation is much more clearly understood than formerly, since surgeons have done away with the injurious influence of antiseptics on the remaining kidney by employing an aseptic technique, and in looking back we can see that in many cases where anuria occurred immediately after the removal of a kidney, it was in many cases due to the absorption of toxic

products employed for sterilisation. It becomes evident at the present time, when functional disturbances occur in the remaining kidney after nephrectomy, that in the majority of cases the process is purely a physiological one, due to a reflex condition acting on the innervation of the renal vessels.

In cases of obstruction of one ureter other than from calculus, the easiest and clearest reason for the occurrence of a reflex suppression of secretion, giving rise to a so-called sympathetic anuria, is met with when acute suppression arises in movable kidney. In these cases, at the time of the attack a decrease in the amount of urine, or even absolute anuria, may occur. When the crisis is over the renal function is restored, so that any supposition of any arrest of the secreting functions having pre-existed in the other kidney must be rejected. Israel has reported a case where this fact cannot be denied. In this case he observed a distinct reflex inhibitory influence over the left kidney arising after an acute increase in tension, resulting from a temporary closure of the ureter in a right-sided hydronephrosis.

The kidney was enormously distended from time to time and extremely painful from the tension, and, at the time of the attacks, the amount of urine secreted diminished to practically nothing, but, as soon as the sac was emptied by puncture, a flood of urine was voided by the bladder. This polyuria occurred from the healthy kidney, for the urine voided by the bladder was perfectly normal, whereas that obtained from the hydronephrotic organ was tinged with blood. In another case, Israel had to deal with an increase in intrarenal pressure in one kidney, resulting from kinking of an abnormally long ureter; suppression of the secretion in the healthy kidney resulted. The occlusion of a left-sided hydronephrosis resulted in a total anuria. The right kidney was incised, and during the operation the renal vein was ruptured, death resulting twenty-eight hours after the operation. Microscopic examination showed that the structure of the right kidney was perfectly normal.

According to these observations it becomes evident how an irritation arising in one kidney can suppress the secreting functions in the opposite organ, and by removal of the exciting cause the normal kidney will again regain its physiological functions. A still more evident proof, possessing the positiveness of a physiological experiment, is the occurrence of a renorenal reflex resulting in oliguria or anuria when the latter condition is overcome, after removal of the diseased kidney during the occurrence of occlusion to the exit of the

urine from that side. Here, again, Israel has reported an interesting case. He removed a diseased kidney, and after the operation the amount of urine voided in twenty-four hours amounted to three times the quantity expelled before the operation. Here one is dealing with instances of kinking of the ureter and hydronephrosis resulting in an increased intrarenal pressure, which by reflex action has stopped the excretory functions in the opposite gland.

Considering now cases of obstruction due to impaction of a calculus in the ureter on one side, and where anuria results, it is difficult to prove the sympathetic nature of the condition. It may be upheld that one ureter is occluded by a calculus, while the ureter of its fellow may be kinked; or that the opposite kidney may be diseased and incapable of carrying on its function; or that it may be a rudimentary organ, so that the occluded kidney was in reality the only one carrying on urinary secretion. It is quite true that such conditions have been frequently observed and reported as instances of reflex anuria, but, nevertheless, there are enough authentic recorded cases to be found in which an occlusion by a calculus in one ureter has distinctly resulted in a reflex action arresting the functions in the opposite healthy kidney. Legueu is very positive in asserting that there is no such thing as reflex anuria, and that when suppression of the urine does occur, it is due to the fact that the patient possesses only one kidney. Personally, I believe that this opinion is too absolute, and a case recorded by Israel seems to show that the proposition is untenable in every case. After exposing the left kidney and removing a stone from the hilum in a patient, 62 years old, Israel noted that the urinary secretion returned immediately, and very profusely, both by way of the bladder and through the drainage-tube in the left kidney. By the cystoscope it was found that the right kidney, which had not been operated on, secreted normally again; which would seem to prove the reflex nature of the cessation of its function. Legueu, nevertheless, upholds that a reflex calculous anuria cannot exist, and when there is anuria from calculous obstruction, both kidneys must be diseased or only one gland is present. The above-mentioned case, reported by Israel, would seem, however, to prove the contrary: because complete anuria was present with obstruction in one ureter only, which was completely relieved after operation, and it was proved by the cystoscope that urine came into the bladder from the healthy kidney after operation. The following case is interesting in many respects:—

A male, 37 years old, with a good family history, had never been ill. Up to within six weeks of the time the patient was first seen there apparently had not been any renal symptoms. The patient, however, became suddenly ill with pain in both renal regions accompanied by anorexia and abdominal distension. Since the commencement of the illness the urine appeared to have shown a considerable deposit, and, at the same time, the amount was markedly decreased. After judicious medical treatment had been resorted to for several weeks, the urine continued to be passed in very small amount, was decidedly cloudy, and contained a fairly large quantity of albumen. A few days before coming under observation the amount of urine excreted became less and less until complete anuria resulted. Up to this time the patient's general condition was fairly good and he did not suffer, but, in order to prevent the appearance of uræmic symptoms, he was placed under surgical observation. When first seen the anuria had existed for a day and a half. Physical examination showed a large, well-built man, with slight œdema of the feet. The mental condition was not changed other than for some slight confusion. The pulse was weak and about 70 to the minute. The thoracic organs appeared normal, and no intestinal symptoms were present. Palpation of the renal region elicited no more pain on the right than on the left, but he stated that the last attacks of pain had occurred on the left. Neither kidney could be palpated.

An operation was undertaken at once, and since the patient complained of more pain on pressure over the left kidney, and as the kidney could be palpated on that side, as well as on account of the objective diagnosis, this gland was presumed to be the one that had retained its functions up to the last. As to the condition of the right kidney, and whether or not it had become physiologically without value, was a problem that could not be solved. Likewise the etiology of the anuria could not be made out with any certainty, although a reflex calculous anuria, or obstruction of the ureters with calculi, was considered probable. The left kidney was consequently exposed, and was found tumefied and hyperæmic, but otherwise apparently normal. The renal pelvis was of normal size, and the ureter, as far as it could be palpated, was normal. The kidney was then split open, and a small amount of cloudy urine made its exit from the renal pelvis. Retrograde catheterisation of the ureter revealed nothing, as the instrument could be pushed into the bladder. The operation was completed by gauze plugging and a drainage-tube. The

outcome was satisfactory, because, several hours after the operation, large amounts of urine came from the wound, but none from the bladder. This continued for ten days, and then less urine was excreted through the tube, while the quantity expelled by the bladder increased. During convalescence the patient experienced attacks of pain in the right kidney, and with each of these there was a decrease in the amount of urine passed. After eight days the attacks of pain on the right ceased and did not return, and, as the wound was closed and the patient felt perfectly well, he was discharged twenty-five days after the operation. We heard from him three months later, when he stated that he was in the best of health, and the amount of urine passed was normal. Seven months after the operation he again complained of pain in the right renal region, but the amount of urine did not decrease; it was found to contain a considerable amount of albumen. Upon examination the right renal region appeared tumefied, and upon incision a large amount of pus was let out which surrounded the kidney, but the wound closed kindly in a short time.

From this it would appear that a calculus or calculi were present in the right kidney, and that a pyelonephritis had developed, and resulted in a pararenal abscess by which the concretion had made its exit. A year later the patient was in excellent health.

A very similar case has been recorded by Mittag, which occurred in Von Bramann's clinic; and another by Godlee. The latter case is briefly as follows:—A physician, 31 years of age, suffered from septicæmia, when a student in 1872, as the result of an injury; otherwise he had been well until the last two years, when he had occasional attacks of right-sided renal colic, which were relieved by morphine. The attacks became more severe and associated with anuria, while the urine showed quite an amount of albumen and many hyaline casts. In July, 1885, a deep-seated perinephritic abscess was opened, but the kidney could not be discovered. No urine came from the wound, and the albumen considerably decreased. In December of the same year complete suppression of the urine again occurred, lasting a week. No operation was undertaken, because it was supposed that there was only one functioning kidney whose ureter had been occluded by a calculus. Death took place a week later. Autopsy showed a large pus-pocket in the right kidney, with a calculus lodged in the middle of the ureter, above which the tube had become greatly dilated. The left kidney was large and normal, and

microscopically only showed evidences of a mild interstitial nephritis. The interesting points in this case are that an abscess in the right kidney could produce such a considerable amount of albumen and casts in the urine, and that the irritation in the right renal gland could cause complete anuria, although the other organ was comparatively healthy. Godlee expressed the opinion, in reporting the case, that perhaps the amount of morphine given to the patient had some bearing in the production of the anuria.

In a case occurring at the surgical clinic at Halle, a renal abscess on the right side was present, which at times gave rise to considerable albumen in the urine. Here, again, the irritative process arose in the diseased right kidney, producing anuria from its reflex effect on the secretion in the latter.

We now come to reflex anuria arising in *traumatism* of one kidney, and we will first consider direct traumatism. In traumatisms of the kidney, whether they be operative or not, anuria may arise, although the opposite gland may be normal. Marsh and Clarke have met with such instances; although, under the circumstances, one is dealing with a combined action of various factors, which, according to the above-mentioned authorities, results in a too complicated process to allow one to consider the condition as a reflex anuria with any certainty. On the other hand, other observers have reported cases which are more important. Butler has published the following case:—

A labourer, 43 years old, received a blow on the left side of the abdomen, and, although he had pain in this region, he continued to work for four days. On the fourth day following the accident, anuria suddenly occurred, accompanied by rigors, nausea, and violent pain in the back. When seen on the tenth day after anuria had set in, his breath possessed a distinctly urinous odour and the abdomen was slightly distended. On the next day there was vomiting, and muscular twitching during sleep, and two days later he died with all the symptoms of uræmia. Autopsy showed a cystic atrophic kidney with a patent ureter. The left kidney was considerably enlarged and bound down by old and new adhesions. The ureter was distended with urine, and at its middle was completely obliterated; in the radicles of the renal vein, thrombi were found, which at first sight looked like small calculi.

After removal of one kidney anuria may follow, and, if the condition is not overcome, death soon results from uræmia. Anuria arises under these conditions, either from the fact that the opposite kidney was diseased to such an extent that its

functions had been carried out altogether by the organ removed; or, on the other hand, the heart may have been undergoing pathological transformation for some time, and its action had become weakened from the narcosis and loss of blood which accompany all operative interferences. In the latter case, from the poor blood-supply, ischæmia of the kidney results, causing rapid degeneration of the renal epithelium, and, with this, cessation of its functions. Without any doubt disturbances in the kidney occur, which in some cases are rapidly overcome; while in others an acute inflammatory process arises, resulting in a diminution of the secretion, which finally ceases.

Autopsies on these cases show either an extreme cloudy or fatty degeneration, with necrobiosis of the renal epithelium, or the kidney may present an interstitial infiltration in which the renal epithelium also tends to become considerably involved. In the milder cases a reflex action on the healthy kidney is the result of the anuria, but in other instances other influences, probably of a purely nervous nature, are to be taken into consideration, which are evidently direct irritations far exceeding the physiological point. It is not possible for a perfectly healthy kidney to fail under the heavy burden suddenly imposed upon it by the removal of its fellow, so that one should search for some other influences of specific irritation. Bonardi has shown experimentally that in animals from whom a kidney has been removed under narcosis, the subjects were more susceptible to infections and intoxications. A very serious influence upon the renal epithelium, resulting from the narcotic used, whether in the form of a direct irritation or ischæmia resulting from the narcosis, is most doubtful. One should always take into consideration the absorption of chloroform into the system, which in itself is not dangerous, but combined with other influences is apt to increase the danger.

Certain antiseptic materials, when coming into direct contact with a wounded surface in large quantities, are far more important than either ether or chloroform. The deleterious action on the kidney of carbolic acid, iodoform, and especially bichloride of mercury, are well known, and if, into the bargain, the heart's action becomes weak—a condition not infrequently observed in doing nephrectomy—the danger then increases to a considerable degree. For this reason I am of opinion that in the removal of a kidney the aseptic technique is the one to be preferred.

In this respect an interesting case of anuria following

removal of the kidney, occurring in the surgical clinic of Marburg, has been reported by Barth. The case was a malignant tumour of the right kidney in a five year old child. The diminished amount of urine existing before the operation did not at first undergo any considerable change after the kidney had been removed, and the amount excreted even began to increase. The patient convalesced and appeared out of danger, when on the fourteenth day he was nauseated and sleepy, while the amount of urine rapidly diminished, only 40 grammes being passed on the next day, which contained albumen and large numbers of red blood cells. On the day following, complete anuria set in with marked uræmic symptoms. The pulse was irregular and intermittent. On the following day the condition suddenly changed; the urine was secreted to an amount not reached before, the pulse became regular and all the alarming symptoms disappeared, and from this time on the patient rapidly recovered.

The remaining kidney was not enlarged nor painful, the chemical and microscopic changes in the urine were only present during the attack, and examination of the bladder showed it to be perfectly normal. To sum up, it may be said that this was a reflex anuria, probably arising from irritation of the nerves in the stump of the removed right kidney, and this caused a reflex angiospasm in the vessels of the left organ, resulting in a cessation of the secretion. The irritation producing a reflex was probably due to an inflammatory swelling of the granulating wound in which the nerves were embedded. The change in the heart's action should also be taken into consideration in this case. The pulse was very irregular and markedly intermittent during the attack, a condition of affairs not observed either before or after the attack. This phenomenon may, however, be explained when one takes into consideration the intimate and direct relationship existing between the vagus and vaso-constrictors of the kidneys, as has been demonstrated by Masius.

Israel has recorded several cases of anuria following extirpation of the kidney, but he says that, although complete anuria occurred, it was not the result of reflex influence, but wholly dependent on the weakened condition of the heart. This authority is sceptical regarding reflex anuria, although he does not consider it impossible, and, according to his way of thinking, so many conditions are present during an operation that it would be difficult to consider the anuria following as due to any one particular cause. In his own cases the patients presented atrophic or parenchymatous

changes in the myocardium, and from the narcosis, the operative traumatism and so forth, the heart, already in a diseased condition, was influenced in such a way that the renal activity would become lowered as a result of diminished blood pressure. In point of fact, the latter is certainly of great importance, whether resulting from a weak heart or a reflex vaso-constricting action on the renal vessels. From the development of ischæmia, if it persists for any length of time, severe damage to the renal epithelium results, but the latter can recover if the blood-supply is not interfered with for too long a time. An increase in the secretion of urine then follows, and the fact is clinically of great interest, because, to a certain extent, it represents a physiological reaction of the renal blood-supply, or rather, perhaps, its nervous apparatus, upon the pre-existing condition of irritation. An angioparesis of short duration follows angiospasm, and, as in animal experiments, results in an abnormal secretion of urine. Clinically, this phenomenon is a very well known occurrence. The following case is not devoid of interest:—

A male, 41 years of age, was seen in the middle of January, 1900, complaining of a fulness in the bladder even when the organ was empty. Five days later a swelling was found, just below the region of the stomach, with borders which could not be distinctly defined. Considerable pain was elicited in the tumour upon pressure. The patient complained of pains in the legs and back. The descending colon was found lying over the tumour, which extended from the left renal region down into the pelvis. Inflation of the stomach caused the resistance to disappear. The surface of the tumour appeared smooth. The growth increased in size very rapidly, so that by 1st February the patient was extremely weak and œdema of the lower extremities appeared. At no time up till now was either albumen or casts found in the urine: but on 10th February a trace of albumen was discovered, and the specific gravity of the urine was 1004. The daily amount had averaged about 1,300 grammes, when suddenly on 11th February the urine decreased, only about 650 c.c. was voided, and the next day a little less. On 14th February there was complete anuria. When seen in consultation on this date the patient was found extremely emaciated, with considerable œdema of the lower limbs. The tumour presented in the left hypochondriac region in the form of a hard swelling with smooth surface, and not adherent to the abdominal wall. The growth reached nearly to the median line, and its lower border appeared to be about two fingerbreadths below

the umbilicus. It was not movable. Its size might be roughly estimated as that of an adult head. No fluctuation could be elicited. No functional disturbances of the stomach or intestine. By inflation of the large intestine the descending colon appeared to be displaced towards the middle line and somewhat downwards. The thoracic organs showed no evidence of disease.

Hydronephrosis was eliminated on account of the absence of fluctuation, and, although there was little or no rise in temperature, I did not feel that renal tuberculosis could be eliminated, although I was under the impression that I was more likely dealing with a sarcoma of the left kidney. But it might be either of the two latter diseases which had resulted in anuria produced by pressure on the right ureter from metastases in the mesenteric lymph nodes, together with displacement of the left ureter from direct pressure: or, on the other hand, the anuria might be due to retention from compression of the right ureter from growths developing in the small pelvis. The marked œdema could be best explained from congestion due to compression on the inferior vena cava.

For the next few days that the patient was under observation there was complete anuria, proved by catheterisation. The œdema increased, the patient complained of headache and was constantly nauseated. The pulse ran high, and, on account of the threatening uræmia, it was decided to operate. The right kidney was selected as the organ to be operated on, because it was practically certain that it was the healthy organ. Consequently, the kidney was exposed by a lumbar incision and split open. The renal pelvis was found somewhat enlarged. The opening in the kidney was packed with gauze. For the next few days large quantities of urine were passed by the drain, it being somewhat cloudy and containing some epithelium presenting characteristics of fatty degeneration. A little urine was also voided from the bladder. The amount of urine coming from the wound and from the bladder varied, and when a small amount was passed by the tubes the amount in twenty-four hours practically was equalled by the amount passed from the bladder. After the operation the patient's condition varied; at times his mind was clear, the appetite good, and the tongue moist, while at others he was mentally confused, vomited, and was persuaded with difficulty to take nourishment. He finally sank, and died nine days afterwards. Unfortunately no autopsy could be obtained.

Although more proof is not necessary to show that a renorenal reflex can result in the cessation of function of the

kidney on the opposite side, I, nevertheless, would briefly allude to one case recorded by Israel, that of a young woman who, after removal of a right-sided hydronephritic kidney, presented reflex anuria due to irritation by the drainage-tube, which was too long. That this was so is proven from the fact that immediately after the drainage-tube was shortened the amount of urine immediately increased to 3,000 c.c., and after this polyuria had lasted for several days the urinary secretion returned to the normal.

In anuria due to *cholera* one finds, according to Rosenstein, a marked venous hyperæmia of the kidney, the organ being occasionally enlarged. Microscopically, casting off and degeneration of the epithelium is noted, although there appears to be an anatomical integrity of the secretory apparatus. The glomeruli of Malpighi, tubules and capsule, as well as the interstitial tissue, appear to be intact. Since the amount of urine voided depends, according to Ludwig and Heidenhain, upon the blood pressure and the rapidity of the flow in the glomeruli, the anuria occurring in the asphyxic stage of cholera is to be explained from this fact, because, in this stage of the disease, the pulse can hardly be felt, and, consequently, the circulation practically entirely ceases.

At the commencement of a *diffuse nephritis* there is usually oliguria, so that the amount of urine in most cases will hardly exceed 100 c.c. In severe cases anuria may develop and last for one or several days. At the commencement of convalescence the twenty-four hour amount of urine appears increased and polyuria is not infrequently present. The anuria and oliguria appear to find an explanation through the almost complete blocking up of the urinary canals with casts. Whitelaw describes a case of anuria in a boy, 8 years old, which lasted twenty-five days, commencing two months after the development of a scarlatina. Exceptional cases, however, occur, where the connection between a diffuse nephritis and anuria is not at all clear, in which the suppression of urine suddenly occurs without any previous symptoms of any inflammatory process, and it is only operation or autopsy that reveals the correct condition of affairs. Such a case has been recorded by Israel, where a diffuse nephritis of both glands resulted in complete arrest of secretion of urine. As the anuria set in suddenly, without premonitory symptoms and without any preceding qualitative or quantitative change in the urine, it was impossible to make a diagnosis beforehand.

It is well known that in cases of diffuse nephritis, especially when following scarlet fever, oliguria occurs, but absolute

anuria is uncommon. However, anuria is far more infrequent in ascending pyelonephritis than in hæmatogenous nephritis, for the simple reason that in the former the renal changes are not diffusely spread, and exist rather more in the form of foci. Israel has, nevertheless, met with complete anuria in a case of left-sided sub-acute ascending pyelonephritis in a patient whose right kidney had been removed eight months previously on account of tuberculosis of the organ. The arrest of secretion is probably to be considered as a result of the acute inflammatory process with increased intrarenal pressure. From this results a sudden increase in tension, which explains the initial attacks of pain which may readily lead the clinician to make a diagnosis of occlusion from calculus. By slitting open the kidney, the excessive pressure on the parenchyma can be relieved, because the blood, the tissue fluids, and the inflammatory products can be eliminated, and the circulation is restored throughout the organ.

I now come to consider the most frequent cause of anuria, namely, *renal calculus*. Complete suppression of urine can more readily be understood in those cases where occlusion of both ureters occur at the same time, or where only one functioning kidney is present. I have already mentioned how a failure in the functions of the second kidney, perfectly capable of functioning, may arise when the ureter on the other side is obstructed, this being the result of a reflex vaso-constrictor type. Nephrolithiasis is more apt to make itself known after the thirtieth year of life, and generally only gravel and small calculi are voided. However, as these patients advance in years, the calculi from the kidney become large in size, so that they cannot be expelled by the ureter. Now, if a patient presenting anuria has suffered for a number of years with renal symptoms, and if the passage of the stones has been painful, one should be on the lookout for hydronephrosis. During anuria calculosa, a hydronephrosis would hardly be formed, because the occlusion takes place suddenly, but only for a very short time will the kidney secrete a small amount of urine.

Cohnheim was, I believe, the first to experimentally develop hydronephrosis; and he came to the conclusion that, in complete obstruction of the ureter, hydronephrosis can only occur to a mild degree, because the enormous tension set up rapidly produces a failure in the secretory power of the organ, and that marked hydronephrosis arises only in incomplete obstruction of the ureter. Clinically speaking, three possibilities may exist as far as the development of calculous

anuria is concerned—either both kidneys with perfect functional integrity are arrested in their secretion from a calculus becoming lodged in the ureter, the same thing occurring in the other very shortly afterwards, or, what is more uncommon, at the same time: secondly, we may have one kidney physiologically worthless on account of previous lesions, and the other, which alone is carrying out the work, becomes clogged by the occlusion of its ureter; and, lastly, we have those cases where the patient has only one kidney, the other having been removed for some lesion, or is congenitally absent.

Considering the case of two kidneys in perfect functional order, whose ureters have both been obstructed by a calculus, the only case that I am aware of is that recorded by Hæhner. That occlusion of both ureters must have occurred about the same time, or within a very short interval, was shown from the fact that the mucosa, at the points where the calculi were wedged in, presented ecchymosis and the commencement of an ulcerative process, while the parenchyma of both kidneys gave evidence of the same condition. It is quite true that there are a number of instances of calculous ulcers in both ureters, but in all of them one kidney was always functionally worthless on account of some former lesion. In these cases reflex anuria, of course, does not exist; but they were frequently classified under this heading, on account of superficial observation of the case. Bischoff has published a case of anuria, which lasted twenty-three days, where both ureters were occluded by calculi, but the right kidney had for a number of years not been functionally active. Several instances of calculous anuria have been recorded by Israel, but they differ in no way from the others.

One is always dealing with the mechanical form of anuria—that where one kidney has been diseased for some time and occlusion of the functioning organ naturally leads to suppression of urine. Thus, in Arlowski's case, which resulted in death after anuria of eighteen days' duration, both glands had become physiologically worthless on account of the calculi; while in Ultzmann's case, in which anuria of fourteen days' duration terminated fatally, the right kidney was found obliterated, while the left was double the normal size and a stone was found lodged in the ureter. The literature of all countries is replete with such cases. The following case is especially interesting for the reason that the functions of the left kidney were suddenly overcome by occlusion of its ureter with a calculus, while the right kidney had apparently lost

its functional powers some time past; these were regained, however, just at the time when an operation was about to be undertaken for the relief of the condition. The patient had frequently had attacks of pain in the right, followed by the passage of calculi, so that it could be reasonably supposed that the right kidney was already diseased. Then renal colic appeared on the left side. Anuria appeared, which lasted for nine days, so that it was decided to operate; but, while being prepared for the operation, the patient suddenly began to pass urine, and two days later a calculus, the size of a pea, was voided.

The third possibility for the occurrence of calculous anuria, aside from reflex anuria, is where only one kidney exists. It is true that, so far as I am aware, only one instance of anuria arising after the removal of one kidney has been encountered. To Dr. Lewis S. Pilcher I am greatly indebted for the privilege of reporting this case, which has not as yet been published. A male, 32 years of age, was admitted to the Methodist Episcopal Hospital in Brooklyn, N.Y., on 8th October, 1905, with a history that in December, 1902, after an uncertain period of previous symptoms, he had been subjected to a nephrolithotomy of the left kidney by Dr. A. T. Bristow at the King's County Hospital. A fistula persisted after this operation, in consequence of which he was again admitted to the same hospital in July, 1904, in the service of Dr. William Maddren, by whom a complete extirpation of the left kidney was done. From this operation he made a good recovery, with complete healing of the operative wound. He remained well thereafter until 1st September, 1905, when he began to complain of pain in the region of the right kidney. This had persisted, with remissions and exacerbations, for five weeks, during which time he was under medical treatment, but without relief.

On the evening of 8th October the pain suddenly became very severe, and was attended with vomiting and a rise in temperature. On account of this attack he was brought to the Methodist Episcopal Hospital for treatment, with the statement that no urine had been passed since the attack began. Examination revealed rigidity of the abdominal muscles in the right hypochondriac region; tenderness on pressure in the right lumbar region, where an enlarged right kidney was palpable. Temperature, 101.6°; pulse, 120; respiration, 40. *Blood examination*—White blood corpuscles, 19,400; polynuclear leucocytes, 87 per cent. Nine hours after admission he was catheterised and less than half a teaspoonful

of urine was obtained from the bladder. Twelve hours after admission the right kidney was exposed by a lumbar incision. It was found swollen, congested, and œdematous.

The renal pelvis was much distended, and when incised several ounces of urine gushed from the opening under great tension. Some pus was mingled with the urine. Through the opening in the renal pelvis twenty-three calculi, varying in size from that of a split pea to a hickory nut, were then removed and the interior of the cavities in the kidney was thoroughly irrigated. A sound was passed down into the ureter, which was found patent. The outlet from the pelvis of the kidney had evidently been blocked by one of the calculi which had been removed. A rubber drainage-tube was inserted down into the renal pelvis, and the incision in the latter was closed by chromic gut down to the tube. The greater portion of the operative incision was closed by sutures, a moderate-sized tampon of iodoform gauze being placed around the tube from skin to kidney. For the first twenty-four hours after the operation the discharges from the wound were very slightly urinous in odour, and no urine passed down into the bladder, as ascertained by the passage of the catheter. Nitro-glycerin and an abundant ingestion of fluids were then prescribed. During the second twenty-four hours 105 oz. of urine were voided from the bladder. From this time the function of the kidney and bladder continued normal. The drainage-tube gave issue to a slight amount of urine during the first ten days. On the fourteenth day the drainage-tube was discontinued, after which the sinus rapidly closed. The patient made an uneventful convalescence, and was discharged cured at the end of five weeks from his admission.

A case of anuria had been reported by Meyer, which occurred thirty-eight days after nephrectomy, and was due to obstruction of the ureter by clots and pus. Nephrotomy was performed successfully. During life it is hardly possible to make a diagnosis of the presence of only one kidney, and it is usually at autopsy that this is discovered. In this respect I would mention Schwengers' case. The patient had always been well up to the time of an anuria which lasted nine days. This was ushered in with severe pain on the right side, and death resulted. Autopsy revealed the absence of the left kidney, not even a rudimentary organ being found. Occlusion by a calculus lodged in the ureter was the cause of the anuria.

The diagnosis of calculous anuria can ordinarily be made from the history of the case, because these patients generally have been previously troubled by urinary symptoms, such as

the passage of gravel or a calculus. Colicky pains and blood in the urine precede in many cases the passage of a stone, but, on the other hand, every symptom may be lacking, the anuria suddenly occurring without any warning. Now, since anuria is not an infrequent symptom of nephrolithiasis, this condition should be first considered, but some difficulty may be encountered in those cases where the patient gives no distinct history of past trouble. However, the first question which is raised in one's mind is whether or not a calculous obstruction exists in both ureters or only in one; and, in the latter case, upon which side. Then, if it is ascertained that both ureters are obstructed, it is most important to determine which kidney was the last affected, because, when the functioning kidney becomes the object of operation, the outlook is good if the obstruction can be removed, as the other kidney may have been physiologically worthless for some time.

In order to come to a correct conclusion the history given by the patient himself will greatly help, because he will probably be able to give information as to the side he first felt the pain in. When the answers relative to pain are definite, one should always bear in mind the possibility that the last pains felt may have been in the diseased kidney, due to a renorenal reflex, and this has been shown in a case reported by Israel. The objective findings are hardly worth considering, for, even if by purely objective diagnosis the other kidney is found diseased, it still remains questionable whether it is the cause of the anuria, and perhaps functionally worthless for a considerable length of time; and whether if operation on the remaining functioning kidney would relieve the anuria or not. The pain resulting from pressure on the obstructed side is not of much value, but Israel considers as a valuable symptom a marked rigidity of the abdominal walls on palpation, which occurs on the side where the kidney was the last occluded. As to the value of catheterisation of the ureters, opinions vary. As this can only be done with a very fine and rather soft bougie there is a question whether or not the instrument would allow one to recognise the presence of a calculus when it came in contact with it, because the instrument may become caught in a fold of the mucous membrane of the ureter, which is swollen and inflamed, or it may be grasped by a spasm of the ureter. However, if a stone should be diagnosticated, the kidney may have been destroyed for some time and the obstruction may have been present for many years, while the remaining kidney has only become physiologically involved recently. Now, supposing a

stone should be detected in the ureter of the latter, it is questionable whether the obstructing calculus is not located in the ostium of the renal pelvis. The passage would consequently then be free, and the only infallible sign is when no urine is seen by the cystoscope making its exit from the ureteral orifice. Of equally little value is radioscopy, because the stone is not always made evident. Consequently one may say that the kidney to be operated on is the one which was the seat of the last pain, or when this cannot be ascertained with certainty, then one should operate on the gland which on palpation gives rise to the greatest pain, or on the side where the greatest reflex rigidity of the abdominal walls is found.

As to the time when the operation should be undertaken, it at once becomes evident in looking over the reported cases that the result of the operation depends entirely upon this factor. Israel advises not waiting longer than forty-eight hours, if the obstruction is not removed before this time; and statistics plead in favour of a timely interference. Legueu showed in 1891 that the number of cures of calculous anuria where operation was undertaken amount to 66·6 per cent, while of those left alone only 28·5 per cent recovered. Other French authorities advise early interference.

When Tuffier introduced nephrotomy in 1890, surgeons began to attack all renal calculi and those situated in the upper part of the ureter by splitting open the kidney, and personally I feel prepared to say that when the obstacle in the ureter cannot be removed, the kidney should always be opened in order to give exit to the urine.

Relative to those cases of anuria whose cause is due to ureteral obstruction from blood clot or compression from without, it may be said that they are rare, and it is probable under these circumstances that the other kidney is functionally destroyed. Some years ago I treated the question of anuria resulting from extension of carcinoma of the uterus in a paper published in the *Boston Medical and Surgical Journal*, so I will not refer to it again here. Anuria is certainly very rare as the result of compression of the ureter, but Farlow reported a case in the above-mentioned *Journal* in 1889, where death occurred in twelve days. The patient was a woman, 35 years of age, and autopsy revealed a firm, fibrous mass enclosing the walls of the ureter. The ureters and renal pelves were considerably dilated. Patel remarks, in considering anuria resulting from compression of the ureters by abdominal tumours, that both ureters are rarely obstructed at

the same time. Now, if anuria occurs, it must be that both kidneys are diseased, or that the kidney whose ureter is free has been deprived of its physiological functions by reflex action. He regards the explanation given in those cases which have been reported as unsatisfactory, and believes that only the first theory is correct, basing his assertion on a thoroughly observed case occurring in Poncet's clinic.

In closing this paper I cannot refrain from recording one case of anuria of puerperal origin, and where I feel quite certain that had I done a nephrotomy the patient might possibly have been saved. As it was, bilateral decapsulation was done, and, although some improvement manifested itself, the patient died four days after the operation. The history of the case is briefly as follows:—

A young woman, 26 years of age, was delivered on a Saturday evening, the labour requiring only the application of the low forceps. Everything was perfectly normal until at noon on the Thursday following the patient was taken with a rigor and the temperature immediately rose to about 39.5° C., the pulse following it proportionately. The attending physician, rightly suspecting that some uterine infection was showing itself, immediately resorted to intra-uterine irrigations. On the same evening the patient, who had voided no urine during the day, was catheterised and the bladder found empty.

After the irrigation the temperature did not go up and the pulse returned to nearly normal, but, from this time on, complete anuria existed. I saw the patient in consultation on Sunday morning, *i.e.*, after the anuria had been present for about sixty hours, and made the following notes:—Mind perfectly clear, pupils normal, tongue moist but furred. Pulse, 80; temperature, normal. Bimanual examination revealed nothing abnormal in the genital apparatus. There was no œdema other than a slight puffiness under the eyes.

The patient was immediately removed to a private hospital, where a radical treatment to combat the suppression of urine was immediately undertaken, consisting of hot packs, pilocarpin subcutaneously, and acetate of potash internally, with a milk diet. This treatment was carried out for forty-eight hours without attaining any result, and not a drop of urine could at any time be obtained from the bladder. On the next day the œdema of the face became more marked and also appeared at the ankles, while the pulse increased in rapidity and was of a wiry nature. On Tuesday morning, that is to say five days and a half since the commencement of

the anuria, the condition was the same, but the œdema had become more marked, so that operation was immediately decided upon. Narcosis with ethyl chloride and ether. Bilateral decapsulation was done at one sitting, my assistant, Dr. Rolfe, doing one kidney, while I did the other. The glands were exposed by transverse incision, and were found greatly enlarged, tense, and extremely hyperæmic. Decortication was rapidly accomplished, as the kidney popped from its capsule like a pea from a pod. Capsules were resected, the kidneys dropped back, and the wounds sutured. Duration of the operation, thirteen minutes.

During the next twenty-four hours the patient voided 270 c.c. of very albuminous urine containing casts: in the next twenty-four hours 300 c.c. were voided, but during the next twenty-four suppression again became complete, the œdema markedly increased, the mouth became dry, and the patient was delirious. She died sixteen hours later.

The autopsy revealed absolutely nothing abnormal in the abdominal viscera, and microscopical examination of the kidneys showed that, as had been diagnosed clinically, we were dealing with an acute parenchymatous nephritis.

DEATH BY LIGHTNING.¹

By D. CAMPBELL WATT, M.D., C.M.GLASC., PIETERMARITZBURG.

THE following account of a case of death by lightning may be of interest, both on account of the *post-mortem* appearances and on account of the circumstances surrounding the case.

The colony of Natal had been for about a week previously in a state of great excitement, in consequence of the murder by natives of a sub-inspector and a trooper belonging to a body of fourteen mounted police, who had been sent into the country to apprehend a number of natives who had been seen on the hills, armed in defiance of the law.

The native tribes here and there throughout the colony had been getting somewhat out of hand, and it only required the imposition of the poll-tax of 20s. per head on all adult males of the population, with certain exceptions, to bring much of this slumbering discontent to a head. Twenty-seven natives were implicated in this affair.

¹ Read at a meeting of the Glasgow Northern Medical Society held on 3rd April, 1906.

Immediately on receipt of news of the disaster at headquarters, a large force of police was despatched, to be followed by about 1,000 of our colonial "militia" (as our volunteers are now called)—horse, foot, and artillery. These, assisted by a large native "impi," under the Chief Mveli, were to capture the insurgents, dead or alive. The insurgents were "Amakolwa" (christianised natives) who had been influenced by the American Ethiopian Church movement—"Africa for the Africans"—and were armed with assegais (short stabbing spears). This affray, following on the murder of a European farmer by a native the previous month, was exceedingly disquieting.

The excitement amongst the European population (who number about 80,000 only, as against about 800,000 Kaffirs) was due to the fear of a general rising against the whites. The wildest rumours, scares, and flights to "laager," or to the nearest town, were heard of everywhere.

Under these circumstances, a telephonic summons, about 11.15 on the night of 13th February, ordering me, as district surgeon, to go to the Zwaartkop native location, near Henley railway station (where the natives entertained Professors Cleland and M'Kendrick and others of the British Association at a native wedding in August last), and there to investigate the cause of death of the location supervisor, T. F., was, to say the least of it, rather exciting, especially as the report was to the effect that, though death was alleged to be due to lightning, suspicions pointed to murder by natives. The Government attached great importance to the prompt elucidation of this case; for if it were murder it would indicate the spreading of revolt and the necessity for an immediate redistribution of the troops, which were about 25 miles distant at the time.

My instructions were that I was to be at the railway station (Pietermaritzburg) by midnight, with my horse, where a special train would be in readiness to take myself, a detective, 30 mounted and fully armed and accoutred troopers, and 4 native policemen, armed with knob-keries and assegais, under the command of a sub-inspector of the Natal police, to the scene of the disaster. If it were a case of murder, the troopers would at once scour the district for the culprit.

I arrived at the station five minutes after midnight, and had to cool my heels till 1.15 before the troop clattered up. It took some time to entrain the horses and men, and at 1.45 we steamed out of the station, just as the train bringing the Cameron Highlanders from Pretoria came in.

An hour more saw us at Henley, where I received the

statement of the stationmaster. It seems that at 8:30 P.M. a native induna, or old man of authority, and an umfaan, or youth, arrived, and told him that the "baas" was killed by lightning. The stationmaster and another European saddled up, put their revolvers in their pockets, and accompanied the natives back to F.'s house, picking their way over the pitch-dark veldt with the aid of a lantern. They found the deceased lying in the back passage of his house, a large gash in the back of his head, and a pool of blood beside him. There were several natives present, and the stationmaster had a good look at them to assure himself of their attitude and feeling. They seemed peaceable enough, but he thought the gash and blood highly suspicious. Accordingly, on returning to the station, he wired a very guarded telegram to Government, with the result that we were ordered out.

Under a bright full moon and star-spangled summer sky, we trekked across the veldt, forming a long, picturesque, and weird serpentine column, in single file, headed by the induna on the dead man's white horse. We crossed the Umsinduzi River at a drift, or ford, where the reservoir for the water supply of the town had been mapped out: and, as troops always do, the section first over halted till all had crossed in safety, then all moved off together again.

The dwelling of the deceased lay in a clump of trees on the hillside, about 2 miles from the railway station, over in the direction of the Zwaartkop (Blackheaded) Mountain. The house was built and used as a mission station, and then as a police camp till within the past few years. All was quiet on our arrival.

The umfaan's story was as follows:—

He was standing near the stove in the kitchen, and his "baas" was in the passage at the kitchen door, which was open. A flash of lightning occurred, and he saw the white man fall. He himself became unconscious, and on recovering found himself by the door, and his "baas" lying against the closed door on the other side of the passage, dead, with his dog standing by him. He then raised the alarm. There were no marks of violence on the umfaan.

By the aid of a lighted candle I could see the dead body lying with the left shoulder-blade against the closed door, the head hanging forward towards the left shoulder (into which position the stationmaster had moved it), both arms hanging towards the left side, the legs straggling diagonally across the passage, and a large pool of partially coagulated blood below the head on the floor. Blood lay beside the

nostrils, mouth, and ears, from which it had evidently poured. His cap lay on the right shoulder. He was dressed in a jacket and shirt, trousers, socks and boots, linen collar, and tie. The left side of his jacket was saturated with blood.

The clothing was uninjured except as follows:—The anterior aspect of the right sleeves of the jacket and shirt, and the same garments across the right breast, were burst open from within, the torn and frayed edges standing out. No singeing had occurred. The length of the tear (including both sleeve and breast) would be about 9 inches. A semilunar piece had been torn from the back of the linen collar, and a perpendicular tear extended from this down to the back button-hole. He had coins and a knife in his trousers pocket, and a watch in the outside jacket pocket on the left breast, but no fusion had taken place. The watch, however, had stopped at sixteen minutes past seven—the time at which the thunderstorm occurred.

Rigor mortis was exceedingly marked at this time—about eight hours after death—and was still present when I saw the body again about twenty-two hours after death, but it was not so extreme then. It could not have been present about two and a half hours after death, as the stationmaster was able to move the head forward on the body in the course of his inspection. The pupils were moderately dilated.

I found the dorsum of the trunk and the left side of the face generally livid. In the occipital region there was, to the left of the middle line, a large sickle-shaped rent, with ragged edges, about 4 inches in length, and gaping about 2 inches at the widest part. This wound extended perpendicularly from the level of the top of the ear down to the margin of the hairy scalp. The hair at its edges was not singed. On inserting my fingers into the wound I found an equally large gaping fracture of the skull, permitting my palpating the brain, which was lacerated. The left parietal and temporal bones were likewise fractured. The left malar bone was extensively comminuted, so much so as to give a coarse eggshell crackling through the skin over it. Both upper and lower jawbones were fractured on the left side in several places. No fractures existed on the right side of the head, except at the base and in the case of the lower jaw, in which one of the fractures was slightly to the right of the middle line, and there was no other external injury to the head but the one above described.

Underneath the rent in the left sleeve there were two large wounds, divided externally by a bridge of skin in front, about

1 inch wide. These two wounds communicated with each other behind this strip of skin. The external wound measured 2 inches by 2 inches, and the internal one 2 inches by 3 inches. The edges of the skin were ragged, as was also the remainder of the biceps in the wound. There was no sign of scorching.

On the right breast, on a level with the injury to the upper arm and immediately above the nipple, there was a scorched piece of skin, $1\frac{1}{2}$ inch by $2\frac{1}{2}$ inches, and in this area were five small superficial irregularly circular wounds, round which the skin was darker.

No other injuries were found on the body.

Unfortunately the authorities refused permission for a dissection of the body.

The house appeared to be uninjured, and was furnished with a lightning conductor attached to the chimney. The electrical current may have entered by a front window, through a broken pane in the door dividing the passage in two, then killed Mr. F., and obtained its exit by the open back door, or *vice versa*.

After duly examining the body we removed it on a stretcher-bed, mounted on a "Scotch cart" drawn by four oxen, to the station, where the whole party entrained for Pietermaritzburg, arriving there at 8:30 A.M., hungry and sleepy.

The chief points of medical interest in the above case are these—

I. The unusual and extensive fracture of the bones of the head and face. Guy and Ferrier say fracture is rare, and that Pouillet reports a case of extensive fracture of the skull. Mann states that fracture only happens occasionally.

II. As regards rigor mortis, Poore says it is usually marked. Guy and Ferrier quote Hunter to the effect that it is absent, and Richardson and others that it is present. Mann states that it may come on immediately after death, and, if so, it passes off quickly; also that it may occur at the usual period. According to Ryan, some authorities say it is present, others absent. In this particular case rigor mortis was present in a most decided degree.

In addition to the above I have seen several other cases of lightning stroke, which I may quote by way of contrast.

1. A native parson was rendered unconscious and thrown across a road, where he lay without assistance for some considerable time. He recovered without a mark on body or

clothes, or injury of any sort. Natives were near him, but as they are averse to touching a person so struck, regarding such an accident as a Divine visitation, they rendered no assistance.

2. A telegraph boy in town was thrown from his bicycle unconscious, and recovered with paresis of one leg, which disappeared in about three weeks.

3. A native was under a waggon of hay which was struck and ignited. He was pulled out, and recovered completely, with a dark line, about 1 inch broad, down the left side of his dark body. His companion, who was on the top of the hay, was burned to a cinder, and all the sixteen oxen in the waggon were thrown on their right sides. The near leader and the off ox of the pair immediately behind rose up. All the others were dead, and along the left sides of those on the off side of the trek-chain I saw the hair singed in irregular streaks, ranging from a couple of inches to about a foot in length. The other row of oxen would probably be touched in the same way on their right sides, which were invisible as they lay dead. The electric current had run along the trek-chain, touching each animal as it passed.

4. A European was crossing the open veldt on the side of a hill and was killed. He lay flat on his stomach, with his arms down by his sides, and his palms uppermost. His legs were together and straight, with the soles of his feet uppermost. His face was on the ground. His cap had been pitched about 6 feet beyond him, with a large piece torn out from the back. On his scalp was a corresponding wound, with the hair singed. At frequent intervals down, his clothing was ripped, while on his skin were linear livid patches, which did not always correspond to the rents in his dress. One boot was ripped off his foot, and the other torn but still on his foot. Both socks were torn.

The attitude of utter helplessness from absolutely sudden death recalled to my mind the case of the skeleton of a native boy which I had been examining close to the main road, 6 miles from town. It had been lying sufficiently long for every vestige of soft tissue to have disappeared, every bone lying detached and none fractured. The attitude was exactly that of the man last above described, and it struck me as probable that death had been due to lightning in this case also.

The finding of a dead body under circumstances allowing of the possibility of murder occasionally happens, as in this

case of Mr. F., and when associated with the occurrence of a native rising, the correct interpretation of the case is a matter of first class importance, involving considerations of State action for the suppression of revolt and the protection of the white population, young and old, female as well as male; for a Kaffir does not understand warfare as conducted by the whites. While the latter spare women and children, the Kaffir principle is the old scriptural one of utterly destroying the enemy, so that no more of his breed will grow up in course of time to wreak vengeance on the conqueror.

Hence this case was of some moment, both from a medical and from a State point of view.

Obituary.

WILLIAM DOUGAN, M.D., J.P.

BY the death of Dr. William Dougan, which took place on 3rd June, at the age of 59, the profession in Glasgow has lost one of its best-known members. Dr. Dougan graduated M.B., C.M.Glasg. in 1868, and M.D. in 1872, and was for a long time engaged in an extensive practice in the Springburn district of the city. On the death of Sir George H. B. Macleod he was appointed Medical Officer to the Glasgow Post-Office, of which post he was the occupant when he died.

When in practice he was a hard-working man, and successful withal. To know him was to love him, and he was extremely popular with both his patients and his professional brethren. He was a very keen and interested politician, being all his life a strong Liberal; but he never allowed political feelings to interfere with his friendships. He was also a keen golfer, and took an interest in clubs associated with the memories of Robert Burns and Sir Walter Scott. His connection with the Town Council will be remembered by many of our readers.

His final illness was very short, and very unexpected. Its general course led his medical attendants to hope for recovery, but it suddenly changed for the worse and carried him off with very little warning.

DOUGLAS SPEIRS, M.D.

DR. SPEIRS was hardly known to the present generation of medical practitioners. He graduated M.D. at the University of Glasgow in 1849, and at one time was busily engaged in practice. Latterly, however, he devoted his time largely, if not entirely, to pursuits unconnected with medical work.

JOHN M'GOWN, M.D., L.F.P.S.G.

DR. M'GOWN, who died at Cardross on 15th May, in his seventy-third year, was for many years a well-known practitioner in Millport. A student of Anderson's College, he took the diploma of Licentiate of the Faculty of Physicians and Surgeons in 1859, and in 1862 he graduated M.D. of St. Andrews. Dr. M'Gown had retired from practice several years ago.

CURRENT TOPICS.

WESTERN INFIRMARY APPOINTMENTS.—At a meeting of the Managers on 29th May, Dr. James H. Nicoll was unanimously appointed one of the Visiting Surgeons. This appointment was made in view of the approaching opening of the new wards.

At a meeting of the Managers on 26th June, Mr. John Morton, M.B., C.M., and Mr. George Henry Edington, M.D., M.R.C.S., were appointed Assistant Surgeons.

NEW PREPARATIONS, &c.

SAJODIN (London: The Bayer Co., Limited, 19 St. Dunstan's Hill).—This is a substitute for potassium iodide, and, as is common with newly introduced preparations, is said to give rise to few or none of the disagreeable effects produced by the agent whose place it is designed to take. Sajodin is the calcium salt of mono-iodo-behenic acid. It is a tasteless and odourless powder, insoluble in water, and may be given in doses of 15 grains three or four times a day.

PARAGANGLIN (London: Burgoyne, Burbidges & Co., 12 Coleman Street, E.C.).—This is an extract of the medulla of the suprarenal bodies of the cow, prepared after the method of Professor Vassale. It is a clear yellowish liquid with a slightly sweet taste. It is employed to increase the tone of smooth muscle fibre, as in gastric and intestinal atony. The dose is from 24 to 30 drops a day when given by the mouth, while from 30 to 50 drops may be used, diluted with water, as an enema for constipation.

SOLUTION OF HYDROCHLORIDE OF HÆMOSTASIN (1 in 1,000) (London: Burgoyne, Burbidges & Co., 12 Coleman Street, E.C.).—Hæmostasin is the active principle of the suprarenal bodies, and the solution may be employed as a hæmostatic in cases of hæmorrhage from ulceration of the stomach or bowel, hæmophilia, purpura, &c. It may be administered by the mouth or hypodermically, or may be applied directly to mucous membranes.

WE have received from Parke, Davis & Co., London, samples of the following:—

1. *Capsules of Thyroidectin* (gr. 5).—This is a non-toxic powder prepared from the blood of animals which have been deprived of the thyroid gland. Highly successful results have been obtained with this remedy in many cases of exophthalmic goitre.

2. *Throat, Mentholated, Compressed Tablet*.—Each contains menthol ($\frac{1}{33}$ grain), benzoic acid ($\frac{1}{12}$ grain), oil of anise ($\frac{1}{80}$ minim), and eucalyptol ($\frac{1}{8}$ minim).

3. *Scopolamine and Morphine Hypodermic Tablets*.—Each contains scopolamine hydrobromide ($\frac{1}{84}$ grain) and morphine hydrochloride ($\frac{2}{5}$ grain). This combination is recommended by Korff, for the production of general anæsthesia, or as an aid to ether or chloroform which, if used at all, are needed in much less quantities than usual. One third part of a freshly prepared solution of one of these tablets is injected two hours and a half, an hour and a half, and half an hour before the operation.

4. *Acetozone*.—A solution of this substance is used as a germicide, and has the advantage of being non-toxic and practically harmless to animal tissues. An aqueous solution of 1 in 1,000 is used in enteric fever.

5. *Acetozone Inhalant*.—This is a solution of acetozone (1 per cent) and chloretone (0.5 per cent) in liquid paraffin. It may be applied by means of a nebuliser.

“TABLOID” “XAXA,” gr. 5 (0.324 gm.). (London: Burroughs Wellcome & Co.).—“Xaxa” is a trade mark name

for the acetyl-salicylic acid issued by this firm. It has been claimed that the drug possesses all the valuable therapeutic properties of salicylic acid and its salts, without producing unpleasant after-effects. Acetyl-salicylic acid is insoluble in the stomach, but readily soluble in the intestine, and therefore causes no gastric irritation. It may be used in any conditions in which salicylic acid or sodium salicylate is usually employed.

HUXLEY'S DUSTING POWDER (London: Anglo-American Pharmaceutical Co., 3 and 5 Frith Road, Croydon).—This is a white, pleasantly smelling dusting powder, which is made up of oleate of zinc, boric acid, salol, talcum, infusorial earths, and probably some other ingredients. It may be recommended for use in cases of heat rashes, intertrigo, hyperidrosis, and similar affections of the skin. It is supplied in 1 oz., 2 oz., 8 oz., and 1 lb. tins.

MEETINGS OF SOCIETIES.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1905-1906.

MEETING II.—22ND NOVEMBER, 1905.

The President, DR. J. K. KELLY, in the Chair.

I.—SPECIMENS.

A. BY DR. ALICE M'LAREN.

1. Cast of the uterus passed in a case of membranous dysmenorrhœa.

B. BY DR. A. LOUISE M'ILROY.

1. Fibroid uterus removed by supravaginal hysterectomy.

C. BY DR. J. K. KELLY.

1. Cancer of both Fallopian tubes.

2. Myomatous uterus with a cyst of the ovary.

II.—DISCUSSION ON THE MECHANISM, DIAGNOSIS, AND MANAGEMENT OF PERSISTENT OCCIPITO-POSTERIOR POSITIONS.

Dr. A. W. Russell opened the discussion by reading a paper which appears as an original article in our issue for May, 1905, at p. 329.

Dr. S. Sloan said—There is no need to dwell on the ordinary mechanism of occipito-posterior cases, except to say that rotation takes place because flexion, which precedes it, brings the occiput first to the floor of the pelvis, and, there being more room in front, as well as a slope forward of the pelvic wall at this part of the cavity, the occiput, by the force of the pains, glides forwards, that is, in a direction which is the resultant of the two forces. Owing to the comparative freedom of the sinciput during flexion there is no opposition to this movement on its part. What perversion of this natural mechanism is it which prevents the normal rotation? This normal mechanism assumes a driving force, and the result will of course be, in part, proportional to this force. Thus diminished uterine action will cause perversion of this natural mechanism to the extent of delay. It also assumes an opposing force, and in this instance the opposing force is the resistance of the pelvic wall at or near its junction with the floor of the pelvis, and the absence or the comparative diminution of the resisting force of the opposite pelvic wall on the sinciput. Absence, therefore, or a diminution of flexion will delay or prevent this forward movement of the occiput. The mechanism, therefore, of persistent occipito-posterior positions is the result of diminished flexion and diminished descent of the head. The question then is, what will give rise to these departures from the normal? In the first place, diminished uterine force will delay both. In the second place, certain forms of pelvis will favour one movement, whilst different forms of pelvis will favour the other, and only the normal pelvis—which, let us for the time being admit, may permit of an occipito-posterior position to begin with—will favour both movements. The generally contracted pelvis favours flexion because there is no room for an extended head, whilst a somewhat flattened pelvis will favour extension, not simply because there is sufficient room in the oblique diameter of the pelvis to permit of this, but also because, the posterior pubic angle being broader in this kind of pelvis, the sinciput is at more liberty to descend.

Rotation, however, though primarily dependent on the flexion, is not necessarily in proportion to it, for whilst in a generally contracted but otherwise normal pelvis flexion is

sufficient, there may yet be a difficulty in the rotation due to the sacro-sciatic ligaments being more nearly parallel, that is, less divergent, in the generally contracted pelvis, or in one approaching the male type, and therefore narrower.

These ligaments are, in a normal female pelvis, decidedly divergent, and therefore permit readily the gliding forward movement of the occiput, which movement probably, as a rule, does not take place till the occiput has reached the edge of these ligaments. Moreover, the narrower the outlet the less readily will the occiput rotate forward, since there may be less resistance to its movement in the hollow of the sacrum. The case may then end naturally as an occipito-posterior one, probably necessitating considerable moulding of the head. In such a pelvis, however, even in one of a shape to make anterior rotation practically impossible, the head may be still able to rotate during the expansion of the vulva and perineum. I apprehend, therefore, that rotation may take place above the brim, or between the level of the sacro-sciatic ligaments and the vulvar outlet, but at no other part of the parturient canal. This, as will be obvious, has a bearing on the question of management. The only remark necessary to make regarding the difference in the mechanism of the two occipito-posterior positions is that the pressure of even the empty rectum will in some degree prevent the easy descent of the occiput.

Diagnosis.—Presuming that from the position of the two fontanelles with relation to each other, or of one of them with relation to the pelvis if both cannot be felt, the case is obviously an occipito-posterior one, the question of the diagnosis of persistent occipito-posterior position resolves itself into the more or less likelihood of a forward rotation of the occiput and of what is causing the persistence, if this condition is assumed to exist.

What is persistence with relation to occipito-posterior positions? First, there is the time element. If the pains are strong, and the progress not proportional to the pains in an occipito-posterior case, we are safe to assume that the delay is at least in part due to the unfavourable position of the occiput. Next, we have to determine what is the likelihood of a final anterior rotation without undue delay. The degree of flexion and the degree of descent, combined with the quality of the pains and the rate of the progress, will be the criteria by which we may determine the diagnosis. Failing any one of these, the prospect is to that degree unfavourable with the unaided efforts of nature. If a partial rotation only has taken place, the head remaining for some time in a transverse

position, the prospect is still less favourable. Again, the constitutional condition of the woman must be considered, for diagnosis may be said to include prognosis in this case. If in an occipito-posterior case there are evidences of exhaustion, these will necessarily intensify the persistence.

Management.—There may be persistence, yet no management may be required, the rotation taking place by natural means just before the termination of the labour, or the case may end naturally and fairly easily as an occipito-posterior one. The persistence may, however, have become pathological, and then the question of management arises.

A great deal has been said in advocacy of manual interference *per vaginam*, and much credit has been taken for the success of this means. Excepting, however, by aiding flexion, I am one of those who believe that the fingers in the vagina can alone do no good, whilst frequent applications may do much harm. We shall see, however, that bimanual interference, *but at the proper time only*, may, in my opinion, do much good.

Since uterine inertia alone may prevent rotation, anything which may increase this may suffice. Amongst the many means whereby this may be done the forceps are the most certain, as well as the most potent; the kind of forceps to be employed with most success and least damage depending on the position of the head in the pelvic cavity. All, however, that should be aimed at must be descent of the head. No instrument, in my opinion, should be trusted to do more. Any attempt to imitate the mechanism of nature at the particular time by the forceps must fail, and do an amount of damage proportioned to the force used. The head must be allowed to take its own course during traction. The forceps which will meet the case best are those which will, under given circumstances, grasp the head in the most favourable position, and permit of traction in the axis of that part of the parturient canal. If the head lies far up in the cavity, as a general rule the double curved axis-traction instruments will best meet the case at that stage. Low down in the cavity, however, the question is not one of elaborate traction apparatus, but of axis-traction, and the ordinary Simpson's forceps can do this easily in hands of ordinary skill. Moreover, in so far as the part of the instrument within the pelvic cavity is less bulky, the safer and more efficient will that instrument be. As soon, however, as the head has reached that part of the pelvis in which rotation naturally takes place, a double curve to the instrument is not only unnecessary, but may prove a

positive hindrance, possibly by preventing flexion. This danger will be directly proportional to the amount of the pelvic curve, though any curve at all is a certain source of added difficulty. As an illustration of this, a most interesting case which happened in my own practice may with profit be here briefly related. The case is published in detail in the *Glasgow Medical Journal* for May, 1879.

This patient had an interesting obstetric history. There had been three previous labours, all forceps cases I was informed, and the only child born alive had been a small girl. The position of the head in the fourth confinement was right occipito-posterior, but the right parietal bone presented on account of the right hand of the fœtus being doubled up behind its right ear. Labour was protracted, and manual attempts to flex the head were fruitless. Simpson's ordinary double-curved forceps were applied for fifty minutes, partial rotation only taking place, and no progress was made, the forceps apparently preventing complete rotation. Having no straight forceps at hand, I employed strong uterine pressure after removing the forceps, pulling with both hands on the fundus. In a very short time the head passed out in the second position, a large-sized boy being born alive and uninjured. The mother made an excellent recovery.

This case naturally made a great impression on me, and caused me to decide in the future to carry with me always a pair of ordinary straight forceps for use in occipito-posterior cases.

Some years after, two cases occurred in my practice in one week where in both the position was occipito-posterior, and in each case the double-curve forceps similarly failed, and for the same reason; all attempts at rotation or extraction proving futile. The straight forceps were then applied in each instance, and a living child was at once extracted in both cases; rotation taking place without any rotating efforts being made by me.

Assuming, then, that forceps which do not prevent rotation may, as a rule, suffice to bring the case to a normal conclusion, what is the best instrument for this particular purpose?

Some years ago anyone who ventured to hint that no obstetrician should trust in every case to one pair of forceps only, and who questioned the infallibility of the much lauded double-curved axis-traction forceps in every case and in any position of the head, was looked upon as either knowing nothing about the matter practically, or, if this could not be said of him, he was looked on as a man of peculiar views, whom those who "knew that they knew" all about the

matter might tolerate in a kindly way as they would one who suffered from some mental aberration. One of the masters of this school was the late Dr. Milne Murray, whose early death was a cause of great grief to me as it must have been to many. Even he, however, came to admit that "the very virtue of the pelvic curve in relation to occipito-anterior cases becomes a more or less manifest vice in relation to occipito-posterior cases, for the grasp of the head in the latter case will be as effective in undoing flexion as it was effective in the former case in increasing it." He therefore advised a modification of the curve, approximating the instrument to the ordinary straight forceps. So firm, however, was his belief in the absolute necessity of having axis-tractors applied to every variety of midwifery forceps, that he added them to this instrument also.

It will be obvious that the nearer this instrument approaches the straight pattern, the more useful will it be, or rather the less harmful. Two of its faults, however, are its great weight—over 2 lb.—and the fact that it has traction rods added to it. For whatever may be said in favour of the advantages of axis-tractors in the high operation, there is much less need of them when the head is in the cavity, whilst that their presence may do no harm when the head is at the outlet is all that can be said in their favour under such circumstances. It is obvious, also, that in cases of special difficulty, that is, when the head is in the transverse diameter of the pelvis, necessitating the application of the blades of the forceps in the antero-posterior diameter of the pelvis, the line of traction by the rods must be not backwards and downwards, as it ought to be and as it will be with the ordinary straight forceps, but in a line exactly at right angles to this. Professor Murdoch Cameron's forceps will be most suitable for such a case, especially if the head were high in the cavity, since it will grasp the head in the desired diameter and make the traction in the desired direction. One cannot, however, carry all the various patterns of forceps in one's obstetric bag, though each variety might be of excellent service in special cases.

Dr. Murray's objection to the ordinary straight forceps is that, though they favour flexion, yet they take their grip too far back on the head, and, therefore, are liable to slip off. Should the forceps slip over the head, however, it would only show that the head was at the time too high for the use of that particular instrument, or that a premature attempt on the part of the operator had been made to carry the handles

forward. This accident, however, would prove the incapacity not of the instrument but of the operator.

Again, if these forceps of Dr. Murray's are used when the head is only moderately low down and in the oblique diameter of the pelvis, the tendency to slip back will be enormously increased by the use of the tractors. Unquestionably no one pattern of forceps can in a severely impacted occipito-posterior case serve the best interests of mother and child throughout the case. The best instrumental treatment is to get the head by means of the double-curved forceps as low down as necessary for rotation, or as low down as to enable the straight forceps to take a proper grasp of the head, and then to apply the medium straight forceps in the transverse diameter of the head, and employ traction alone. If delivery is not then easily accomplished, uterine pressure, combined with bimanual rotation of the body and head of the child, will sometimes at that stage give immediate and most gratifying results. In difficult cases this may require the aid of a skilled assistant. I am convinced, however, that the straight forceps will often succeed where all other measures have failed, and where craniotomy seems the only measure left.

I have little to say regarding absolute occipito-posterior persistence, except that flexion must be aided by the hand or by the forceps, and the soft parts allowed to dilate very slowly. I think, as a rule, the latter is best managed by keeping the forceps on during extraction.

The question of the proper time for interfering in each individual case will depend on so many things that no great advantage would follow an attempt to formulate a series of propositions. I shall only say that the less the skill of the obstetrician the less ready should he be to interfere. I show you the straight forceps I use; they are of medium length, and weigh only 14 oz.

Dr. Stark considered that occipito-posterior positions of the head were much more frequent than was generally supposed. Many right posterior positions become right anterior during the second stage as rotation has occurred, and if the diagnosis is made only at the end of the second stage these cases would be diagnosed as occipito-anterior, whereas they are really occipito-posterior.

The condition ought to be diagnosed during pregnancy, and if a careful examination—abdominal and vaginal—were made then, and it was ascertained that the position of the head was occipito-posterior, the accoucheur could try postural methods

before labour began, or be prepared to make efforts to rectify the position after labour had started by manual, instrumental, or postural methods. A persistent posterior position of the head furnishes, in the majority of instances, the worst examples of vaginal and perineal lacerations, and ought to be rigorously prevented.

Dr. Lindsay thought that the discussion might have been limited with advantage to uncomplicated cases—to the question what should be done when an occipito-posterior position of the foetal head is found in a parturient who is known to have had one or more normal labours. He agreed as to the need of early diagnosis of the complication. While regularly practising abdominal palpation and palpation of the cranial sutures, he could not, in many cases, rely on the results of these methods of examination with complete assurance. When, however, he found a certain peculiar formation of the lower uterine segment which he considered at least highly suggestive of an occipito-posterior position of the head, he passed his hand into the uterus to make sure. If a faulty position were found, an attempt could be made to rectify it by rotation of the head and shoulders. Should the malposition be resumed, as frequently happened, he completed the dilatation of the os and applied forceps.

The risks of early delivery by forceps were, in his opinion, less than the risks attending a waiting policy. This was the procedure which he had come to adopt in unassisted general practice.

Dr. Munro Kerr emphasised the importance of diagnosing the existence of an occipito-posterior presentation, and pointed out how the condition might be recognised in the different stages of labour. He indicated how, during pregnancy and early in labour, it could only be recognised by abdominal palpation; how, when the os was sufficiently dilated, it could be appreciated by the ease with which the anterior fontanelle was felt; and how, still later, it should be suspected when there was undue delay in a parturient whose pelvis was of normal dimensions. He pointed out, further, how even at a later stage an opportunity might be given of recognising the malposition, for when forceps are applied to an occipito-posterior position, and attempts made at traction, the vaginal outlet gapes unduly posteriorly without the head coming down on the perineum.

Dr. Kerr had nothing to say with regard to the etiology of

the condition; he had found it in all varieties of pelvis, and with all sizes of children. He had frequently seen the presentation exist for weeks before labour.

In respect to treatment, Dr. Kerr had found it undesirable to make early attempts at rectification. He had frequently, by abdominal manipulations and by postural treatment, attempted to correct the position, but had invariably failed. It was his practice now always to leave cases of occipito-posterior presentation severely alone, and only to operate when the second stage had been prolonged, and delivery became necessary in the interests of the mother and child.

Dr. Caskie said—I have listened with interest to the paper read by Dr. Russell, and to the remarks made by the other speakers. As a rule, in country practice there are fewer opportunities than in hospital practice of examining cases before labour sets in, or, at least, before the head enters the cavity of the pelvis.

The difficulty of diagnosing these cases by detecting the position of the fontanelles has been alluded to by one of the speakers, and my experience coincides with his regarding the situation of the presenting part of the vertex.

Independent of the position of the fontanelles, there are three characteristics which may cause one to suspect occipito-posterior presentation, viz.:—

1. The pains are often continuous, are usually referred to the front, and are more irritating and “cutting,” perhaps owing to the pressure of the forehead on the pubis.

2. The os and presenting part are situated more to the front, and the former dilates more slowly, as the membranes do not usually protrude.

3. When the forceps are applied and traction is made, the posterior wall of the vagina bulges so as almost to occlude the passage, and if the pressure is severe, long-continued venous oozing occurs from the surface.

It is probable that in many cases rectification takes place naturally, but it has been my practice when such a presentation was suspected, and no progress was made for two hours to complete the delivery with the forceps. In the case of a multipara with a history of normal labours it seems doubtful to me if the attempt to promote rotation is justifiable.

The late Dr. Barnes' opinion, with which I agree, is that one should in these cases be the minister of nature, and not attempt to rectify the position.

In thirty-five cases of midwifery in which the child was

born with face to the pubis of which I retain notes, seven were primiparæ and twenty-eight multiparæ. All of the primiparæ were delivered instrumentally, and all the children were living, one being moribund. Of the multiparæ, seventeen were delivered naturally and eleven instrumentally. Of those delivered naturally all the children were alive, one of them weighing 14 lb. 2 oz. Of those delivered by the forceps, all the children but one were alive, the dead child weighing 11 lb. 4 oz.

The perineum was sutured in two cases, both being primiparæ, the first in the case of a woman above 40 years of age who had a convulsion. As the head rested on the perineum the laceration in the second case was caused by the hysterical behaviour of the mother while the head was being extracted.

It may be interesting to know that in none of the cases was chloroform administered, that the assistant was usually an uncertificated nurse, and the instruments employed were Simpson's long straight forceps, which I have found suitable in all cases which I have been called to attend.

In answer to the President, I have never required to perforate in occipito-posterior cases.

The *President* said the hour was too late for him to enter into any discussion of the question. The only contribution he would make would be merely to recall the fact that many years ago, in a paper read to the Society, he had related his experiences with the long straight forceps, which in a series of 3,000 cases of midwifery he had invariably used where forceps were needed in preference to forceps with a pelvic curve. In occipito-posterior cases especially the straight forceps had a marked superiority over the curved, even when axis-traction was added. The straight forceps itself was an axis-traction forceps.

Dr. A. J. Wilson said—I think I am right in saying there is a greater risk of laceration of the perineum in occipito-posterior presentation, and that the so-called "central tear" of the perineum is more liable to occur when the occiput is posterior. I was unfortunate enough to have a case lately—a persistent occipito-posterior presentation in a young primipara—in which a severe laceration of the central variety took place. I applied the forceps in the usual way (Neville's), and carried the handles well forwards to get the occiput delivered, but quite suddenly the perineum gave way just in front of the anus, and the head appeared through the laceration carrying the

forceps with it, and I had hardly time to get the blades out of the way before the child was delivered *through the laceration*. The anterior and posterior boundaries of the perineum remained intact, and the laceration began in front of anus and ran obliquely forwards to the left side of the fourchette and fully 2 inches beyond that point. The tear was carefully sutured, but the sutures had to be removed on account of sloughing. However, with rest in bed and frequent douching and bathing of the parts with a weak solution of perchloride, rapid healing took place.

Possibly the laceration might have been prevented by an earlier application of the forceps.

Dr. Russell replied.

MEETING III.—20TH DECEMBER, 1905.

The President, DR. J. K. KELLY, in the Chair.

I.—SPECIMENS.

A. BY DR. BALFOUR MARSHALL.

Placenta and membranes from a case of uniovular twins, showing velamentous insertion by both cords.

B. BY DR. J. K. KELLY.

1. Double pyosalpinx, showing complete fusion of tubes and ovaries.
2. An early stage of hydrosalpinx.

C. BY DR. S. J. CAMERON.

Stereoscopic photograph of twin extra-uterine pregnancy.

II.—THREE CASES OF (SO-CALLED) DOUBLE UTERUS, WITH A TABLE OF ONE HUNDRED COLLECTED CASES.

BY DR. G. SCOTT MACGREGOR.

Dr. Macgregor's paper will be found as an original article in our issue for May, 1906, at p. 338.

Dr. Stark said he had reported a case of uterus didelphys in which there was a complete vaginal septum forming two hymens, and two vaginae, and two ora uteri. The septum was prolonged about half way into the cavity of the uterus, and *Dr. Stark* had removed the entire septum, formed one os, and split into the uterine cavity, making the patient practically a normally formed woman as regards the uterus and vagina. In this case there was only one corpus uteri, but in another seen there were two distinct corpora, and this was verified by laparotomy for removal of small atrophic ovaries for the relief of severe menstrual molimina. The result was highly satisfactory, and health and comfort, which had been lost since the age of puberty, had been restored.

III.—LANTERN DEMONSTRATION ON PATHOLOGICAL CONDITIONS OF THE TUBES AND OVARIES.

BY DR. J. K. KELLY.

Dr. Kelly gave a lantern demonstration of various diseases of ovaries and fallopian tubes, including dermoids of ovary; parovarian cysts; hydrosalpinx (single and double); hæmato-salpinx (single and double); hæmatosalpinx in one tube, with pregnancy in the other; hæmatoma of tube and ovary removed during pregnancy; abscesses of ovary independent of pyosalpinx; pyosalpinx independent of pyovarium; pyosalpinx and pyovarium combined; tubercular pyosalpinx; cancerous tubes; cancerous ovaries. Microscopic sections thrown on the screen representing tube in hæmatosalpinx, tube in pyosalpinx, tube in tubercular salpingitis, wall of cystic accessory tube, papilloma of ovary, and various forms of cancer of ovary.

GLASGOW EASTERN MEDICAL SOCIETY.

SESSION 1905-1906.

MEETING IX.—7TH MARCH, 1906.

The Vice-President, DR. T. C. BARRAS, in the Chair.

HINTS TO THE GENERAL PRACTITIONER ON EYE-STRAIN:
ITS SYMPTOMS AND TREATMENT.

BY DR. JAMES HINSHELWOOD.

Dr. Hinshelwood spoke of the importance to the general practitioner of recognising the symptoms of eye-strain, because patients come complaining of symptoms which need not suggest a visual cause. Ocular headache may exist for years and have been constantly ascribed to other causes.

Eye-strain in hypermetropes, from the constant use of the ciliary muscle, may yet be untreated, as the distance tests of the eyes may give normal results.

In astigmatism eye-strain is usually met with in low degrees, because lenticular strain may give perfect vision with periodical outburst of symptoms, while in high degrees no amount of strain will give useful vision.

Always paralyse the ciliary muscle before determining visual acuity. The general symptoms which might follow eye-strain were headache, giddiness, and insomnia. The headache was mostly due to slight astigmatism. There might be other contributing causes, as anæmia and constipation, and these must be treated in addition to eyes. The headache may be frontal, vertical, occipital, or cervical, and it is usually better in the morning, after rest.

The local symptoms were congestion of eyes and eyelids, conjunctivitis and blepharitis, and styes resisting treatment, nictitation or blinking—in children this may be the first symptom.

A number of cases of eye-strain appeared to be due to retinal asthenopia or hyperæsthesia. In these cases, mostly myopes and neurasthenics, the retina is easily exhausted and over-sensitive to light. The patients complain of pain at the back of the eyeball. In such cases removal of glasses for a time gives relief.

In general the various symptoms can be removed by the constant use of glasses to correct visual defects, intelligent care in the use of the eyes and avoidance of overworking them, minimising fine work, the use of good print, the use of good light and coming from behind, as bright light fatigues eyes.

Dr. W. Findlay enquired if there was any basis of truth in the theory that Carlyle's headaches were due to eye-strain.

Dr. Service gave his personal experience of cure of headache by constant use of glasses. He enquired as to the relative harmfulness of gaslight, electric light, and paraffin lamplight. Personally he found lamplight most pleasant to eyes and for reading.

Dr. Hinshelwood was unable to answer *Dr. Findlay*, but thought the theory was imaginative. He did not think the kind of light mattered, but its position and intensity.

MEETING X.—21ST MARCH, 1906.

The Vice-President, DR. BARRAS in the Chair.

I.—**DR. LEONARD FINDLAY** gave a microscopic and lantern demonstration on "Some Common Blood Pictures," and on "Pleural and Peritoneal Exudates."

Lantern slides were shown and explained representing the normal red corpuscles and pathological forms, to wit, poikilocytes, megalocytes, microcytes, normoblasts, and megaloblasts. The white blood corpuscles were likewise shown in detail, comprising eosinophiles, neutrophiles, lymphocytes, and their subvarieties. Microscopic specimens were exhibited, from which most of the lantern views were taken.

A similar double demonstration was given of the following exudates:—

1. Primary tubercular pleurisy, showing lymphocytes.
2. Pleural exudation in pneumonia, showing polymorphonuclear cells.
3. Passive pleural and peritoneal exudations in cardiac disease, showing epithelial cells.

II.—**DR. JOHN SHAW DUNN** gave a microscopic and lantern

demonstration of the life-cycle of the malarial parasite in tertian ague and in malignant forms. The microscopic specimens included a notable one of the male gamete during exflagellation.

Dr. T. K. Monro remarked that at present our knowledge of exudates was limited, and that, so far, we could not, from an examination of them microscopically, confidently assert the nature of their cause.

MEETING XI.—4TH APRIL, 1906.

The Vice-President, DR. T. C. BARRAS, in the Chair.

STERILITY IN THE FEMALE: ITS CAUSES AND TREATMENT.

BY DR. J. K. KELLY.

Dr. Kelly's paper will be found as an original article in our issue for June, 1906, at p. 401.

Dr. J. T. MacLachlan referred to *Dr. Bedford Fenwick's* notion regarding the causes of sterility, that this was frequently due to stenosis of the os externum, and proposed an operation for this.

Dr. Thomas Russell was of opinion that sterility in some cases had brought about mental conditions.

Dr. Samuel Cameron said he had found microscopically that the cilia of the tubes were usually uninjured, even in cases of pyosalpinx. Statistics showed a great percentage of sterility in patients who had suffered from fibroids. He would like *Dr. Kelly's* opinion on that point.

Dr. James Dunlop asked what extent of laceration of the cervix would call for operative treatment. One of his patients had a very large myoma removed by *Dr. Kelly*, and the woman had since borne two children, who are both living.

Dr. T. C. Barras spoke of a case of pyosalpinx where gonorrhœa could be entirely excluded.

Dr. Kelly, in reply, said he would not go the length of advising repair of every tear of the cervix. He would first wait and see if subsequent abortions occurred, as a small

tear may not cause sterility. He had many cases where healthy children had been born to mothers from whom he had removed fibroids. As to the causation of pyosalpinx, he had come across cases where the infection was due to the presence of bacillus coli communis in the tube.

GLASGOW NORTHERN MEDICAL SOCIETY.

A meeting of the Society was held on 6th March.

I.—DR. A. T. CAMPBELL read notes on a case of puerperal eclampsia occurring in a woman, æt. 35, who had not been pregnant for five years, and whose previous labours had been difficult. She had regarded her confinement with anxiety, and this was suggested by Dr. Campbell as a factor in the illness which followed. No sign of illness was noted till the morning of the confinement, when she had severe epigastric pains, with vomiting and distress in breathing. The urine was then found to be highly albuminous. There was no œdema. An hour later severe convulsions came on. An attempt was made to dilate the os with the fingers, but with little success, so Bossi's dilator was used, and the labour completed with forceps within thirty minutes. The patient made a good recovery, with the exception of a temporary loss of memory.

Dr. A. G. Hay, who had seen the case with Dr. Campbell, said the indications were all for rapid delivery, and remarked that a routine treatment of such cases should not be followed, but every case judged separately.

Dr. Sam. Sloan urged the continued examination of the urine of all pregnant women, and commented on the suddenness with which albuminuria made its appearance.

Dr. M'Bryde and *Dr. Edmiston* also spoke.

II.—DR. JAMES TODD introduced a discussion on the "Free Supply of Diphtheritic Antitoxin by Municipalities."

No one would now deny the value of antitoxin. The death-rate since its introduction has fallen from about 30 per cent in 1895 to about 9.6 per cent in 1903, and to withhold its administration was little short of criminal. The time element is also important, as it has been shown that the curative effects are correspondingly greater the earlier it is used in the disease. The good effects of serum on post-diphtheritic

paralysis have also been shown. Beyond urticaria and rheumatic symptoms there are practically no bad effects of administration.

It is thus evident that antitoxin should be given at once without waiting for bacteriological confirmation, and especially so in young children with any evidence of laryngeal involvement. In this town delay for confirmation may mean twenty-four to thirty-six hours lost, and this may mean an added death-rate of from 5 to 10 per cent.

The cost of the remedy is the great drawback, and many people are unable to pay the five or ten shillings necessary for the initial dose, even if the patient is afterwards sent to hospital. It is therefore felt that the municipality which provides bacteriological diagnosis, free treatment in hospitals, and subsequent disinfection of the house might quite well supply antitoxin. The cost would not be great, and the saving would come in a lower death-rate.

New York, Chicago, and many other cities in the United States supply antitoxin free, and have seen no cause to regret it. In Brazil all kinds of sera are supplied free. In New Zealand for some years this practice has been followed.

Dr. Todd estimated that the cost to Glasgow would be about £100 to £150 per annum.

Dr. Todd concluded by moving that a committee be appointed to lay the matter before the Health Committee of the city. This was unanimously approved of, and Drs. John Ritchie, Connal, and Todd were selected.

III.—DR. RIDDELL read a paper on "The Physiological Action of High-frequency Currents," indicating the effects on the various functions of the body, and the diseases likely to be benefited by their administration. Notes of cases were given showing results of treatment.

Dr. Riddell's paper will appear as an original article in a future issue of the *Journal*.

REVIEWS.

On Leprosy and Fish-Eating: a Statement of Facts and Explanations. By JONATHAN HUTCHINSON, F.R.S., F.R.C.S., LL.D. (Glasg., Edin., Camb., and Oxf.), D.Sc. (Leeds), Hon. M.D. (Dublin). London: Archibald Constable & Co., Limited. 1906.

EVERYONE must respect and admire the diligence, tenacity, and persuasiveness with which Mr. Hutchinson advocates what he has called "the fish hypothesis" as the explanation of the occurrence of leprosy. The present volume may be regarded as an outcome of Mr. Hutchinson's visit to South Africa in 1901-1902, and to India in the following winter. As these expeditions were carried out from a sense of duty to the cause which the distinguished surgeon had at heart, and with a definite object in view all through, the results are deserving of the most careful consideration. We may remind our readers that, according to the fish hypothesis, the cause of leprosy is "some ingredient or parasite generated by, or introduced into, fish which has been either not cured at all or cured badly." The fish supplied to the English market, whether fresh or salted, is regarded as perfectly innocuous, so far as the risk of causing leprosy is concerned. In addition to this principal proposition, Mr. Hutchinson maintains that the disease is not spread by contact, unless in extremely rare instances; that segregation is of almost no use for the purpose of prevention; that the leper asylums of the middle ages were not the cause of the decline of the disease; and that in all communities where cured fish is an article of food, the liberal use of salt is the most important preventive measure.

One circumstance which impresses the reader of this book, as it must have impressed the distinguished author, is the unreliability of some of the testimony derived from individuals living and working in places where the disease exists. "Many years ago, in reply to a letter of mine inserted in an Indian journal, Dr. D., a well-known authority, wrote that the facts as to the population of the Straits Settlements were a confutation of my theory, for there the fishermen lived on bad fish and yet had no leprosy. At the time that this statement appeared I had under my care Colonel H., who had held

official position in the district named. He was himself a leper, and he assured me that providing for the lepers had been a constant trouble. He said that he knew Dr. D., and that the latter knew the district, and that it was inexplicable that he should imagine that leprosy was absent." Under these circumstances it is not surprising that Mr. Hutchinson should receive with scepticism denials as to fish-eating from Asiatics whose religious creed forbids the eating of any kind of flesh-food, and who are reported not to possess a "conscience for truth-speaking."

In addition to the chapters on leprosy in different countries, there are others on such subjects as the conditions under which leprosy has declined in some countries and held its ground in others, the relation of leprosy to religious creed, the disproportionate prevalence of leprosy in the two sexes, recoveries from leprosy, the leper houses of the middle ages and the ineffectual character of isolation at that period. An appendix, which extends to more than a hundred pages, contains miscellaneous quotations and statements of fact, and also notes for a gazetteer of leprosy. There are fourteen plates, including maps and other illustrations.

All medical men should make themselves familiar with this book, but it is not intended for the medical profession only. Anyone who is interested in leprosy for any reason whatsoever, whether from the scientific, from the social, or from the humanitarian point of view, may expect to find much to attract and instruct him in this volume.

Nothnagel's Encyclopædia of Practical Medicine (English Edition). Diseases of the Kidneys and of the Spleen: Hæmorrhagic Diseases. By DR. H. SENATOR and DR. M. LITTEN. Edited, with additions, by JAMES B. HERRICK, M.D. Authorised Translation from the German, under the Editorial Supervision of ALFRED STENGEL, M.D. London: W. B. Saunders & Co. 1905.

AN account of the diseases of the kidneys from the pen of Professor Senator is sure to command a hearty welcome. The American editor remarks that Senator's book has always seemed to him a model: "clear in style, systematic in arrangement of facts, logical in reasoning, not prolix." In examining a treatise on this subject, we naturally turn soon to the classification of Bright's disease, and here we find a

scheme which will appeal to those who are not extremists as reasonable and well-founded, if not identical in detail with the one which they themselves like best:—

- (1) Acute nephritis.
 - (a) Parenchymatous (tubular and glomerular).
 - (b) Diffuse (additional forms: nephritis of hæmoglobinuria, of cholera, and of pregnancy).
- (2) Chronic diffuse nephritis without induration (chronic parenchymatous and subchronic).
- (3) Chronic indurative nephritis (contracted kidney).
 - (a) Secondary induration (secondary contracted kidney).
 - (b) Primary induration (chronic interstitial nephritis).
 - (c) Arteriosclerotic induration (additional form: simple non-inflammatory atrophy of the kidneys).

After all, as Professor Herrick justly remarks, the question of classification is an extremely complicated one, and neither clinically, nor etiologically, nor anatomically, can the cases be grouped in an entirely satisfactory manner; so that, unless we are content with a very small number of groups, there is room for endless discussion which will profit very little.

In the general portion of the work we have an account of the urine, of dropsy, of anæmia, and of changes in the vascular apparatus. The author states that the effects of albuminuria on the organism are in most cases insignificant. The daily loss of albumen rarely exceeds a few grams, "a quantity that is not worth considering, and is easily made up." In very rare cases the loss may be more considerable, and have a weakening effect.

The author adopts a non-committal attitude with regard to the etiology of cystic transformation of the kidneys. He recognises that the two possibilities are retention-cysts and tumour-like new formations, but while quoting numerous other observers, he does not make it clear which view he personally accepts.

The special portion includes malformations and displacements, neuralgia, circulatory disturbances, hypertrophy and atrophy, Bright's disease, suppuration, amyloid and fatty degeneration, pyelitis and pyelonephritis, hydronephrosis and pyonephrosis, neoplasms (including hypernephroma), concretions, vegetable and animal parasites, perinephritis and paranephritis, and anomalies of the renal vessels.

The sections on diseases of the spleen and hæmorrhagic diseases are both the work of Professor Litten. The editor's practice here has been to leave Litten's words as he wrote

them, but considerable additions have been necessary to bring the work up to date, as, for instance, on the relationship of the mosquito to malaria. The articles on splenic anæmia, chronic cyanosis with polycythæmia and enlarged spleen, and congenital icterus with splenomegaly, are entirely due to Professor Herrick. Nearly sixteen pages are devoted to the subject of splenectomy.

Of the group of hæmorrhagic diseases the first which comes under consideration is scurvy, and this article is followed by one by Professor Herrick on infantile scurvy. The other diseases included in this section are hæmophilia and purpura hæmorrhagica.

The volume contains a few plates and figures, and altogether constitutes a valuable addition to this admirable series.

The Principles of Clinical Pathology: A Text-Book for Students and Physicians. By DR. LUDOLF KREHL. Authorised Translation from the Third German Edition by ALBION WALTER HEWLETT, M.D. With an Introduction by WILLIAM OSLER, M.D. London: J. B. Lippincott Company. 1905.

THIS book is one of the most enjoyable scientific treatises we have come across for some time, and is one which we can heartily recommend for careful reading by every student and practitioner of medicine. The title is that of the first German edition, though the translation is made from the third (1904) edition of Professor Krehl's *Pathological Physiology*. Disease is studied in this work as a perversion of function, and the subject-matter is arranged in the twelve chapters in the following order:—I, The heart; II, The blood-vessels and the lymph; III, The blood; IV, Infection and immunity; V, The respiration; VI, The digestion; VII, Nutrition and metabolism; VIII, Disturbances in carbohydrate metabolism; Diabetes; IX, The metabolism of the purin bodies; Gout; X, Fever; XI, The secretion of urine; XII, The nervous system.

The translation is an admirable one, and deserves its due share of credit for the pleasure one has in reading the book. The translator has shortened some abstract discussions, and has also added to the value of the work by inserting a few paragraphs of his own on subjects which seemed to require a little further consideration than was given them in the original. Among these subjects may be mentioned forms of arrhythmia, surgical shock, the relation of nephritic œdema

to sodium chloride retention, aleukæmic leukæmia, fat necroses, and the relation of the urinary ethereal sulphates to intestinal putrefaction. The book is provided with an index, numerous references, and a few illustrations.

Ignaz Philipp Semmelweis: Sein Leben und Wirken. Urteile der Mit- und Nachwelt, von DR. FRITZ SCHÜRER VON WALDHEIM, prakt. Arzt in Wien. Mit 2 Portraits. Wien und Leipzig: A. Hartleben's Verlag. 1905.

THE great work of Semmelweis on the etiology of puerperal fever was not recognised in his own school. He was, perhaps, one of the best examples we have in the history of Medicine of the truth of the saying that a prophet has no honour in his own country. He demonstrated in the most convincing manner that the enormous death-rate in the first midwifery klinik at Vienna was due to direct infection of the patients—the poison being conveyed to the patients by the hands of the attendant physicians and students, many of whom were also engaged in anatomical and pathological pursuits. The whole story of this discovery is given in great detail in the second chapter of the present work (*Assistent-Dozent, 1846-1850*, pp. 8-92). The death of his colleague, Kolletschka, from pyæmia, following a wound in the *post-mortem* room, impressed upon Semmelweis the similarity between the clinical phenomena of childbed fever and blood-poisoning. Pondering over the death of Kolletschka he came to the conclusion that "*Bei der Wöchnerin wird der Genitultakt mit Leichengift infiziert!! Wodurch? Durch den untersuchenden Finger, der vorher Kadaverteile berührt hatte*" (p. 18). This was the keynote of his whole future work and of his attempts at prophylaxis. "*Die Wöchnerin ist eine Verwundete!* Der finger trägt das Kadavergift in das genitale und die wunde Placentarstelle wird nachträglich da durch infiziert. *Kindbettfieber ist kadaveröse Blutvergiftung*" (p. 18). The difference in the death-rates of the first and second maternity kliniks at Vienna also convinced him that he was right in his conjecture. In the former, attended by the students, the death-rate was high; in the latter, attended by physicians, who were seldom in the *post-mortem* room, and by midwives, the mortality was relatively insignificant. He also discovered that other poisons than the cadaveric might produce puerperal fever, and he based this discovery on an outbreak in October and November, 1847, of the disease in the ward where all the patients were

examined in turn after the physicians had examined the first case—one of medullary cancer of the uterus (p. 23). Thus, step by step, did this enthusiastic, sympathetic physician establish the soundness of his convictions, and rouse the bitter opposition of his chief, Professor Klein, and other eminent obstetricians and physicians. So great did the opposition become that Semmelweis had to leave Vienna and take up his residence in Budapest. Here he was appointed Professor of Midwifery in the University on 18th July, 1855. In 1861 he published his great work, "*Die Aetiologie, der Begriff und die Prophylaxis des Kindbettfiebers.*" He continued his controversy with the authorities in Vienna in a series of open letters, in which he often expressed himself with a violence and invective which did his cause more harm than good. His mind gave way under the conflict, and he died in Vienna on 13th August, 1865.

Thus ended the career of a great investigator, who was reviled and scorned in his own time by many who should have known better, and who, shortly after his death, began to receive that honour which should have been his during life. Lister admitted that to a certain extent Semmelweis anticipated his own great discoveries.

Dr. von Waldheim has done a good work in writing this important biography, the most complete with which we are acquainted. All who are interested in the life of this great obstetrician, and in the history of the obstetric art, should not fail to add the volume to their libraries.

On Professional Education. By T. CLIFFORD ALLBUTT, M.A., M.D., F.R.S. London: Macmillan & Co., Limited. 1906.

THE Cambridge Professor is nothing if not critical, philosophical, and persuasive. This address will rank equally with others from the same cultivated author and lecturer. It deals more in suggestion than in detail. While insisting on medical students learning well the technique of their profession, and getting sufficient time to acquire that learning, he is a strenuous advocate of the higher education of the professional student in medical history, philosophy, and literature. The cultivation of the imagination he values highly, and he condemns the old apprenticeship system, which generally led to incurable empiricism and narrow routine. "To principles," says the Professor, "sooner or later the subtlest craftsman has to bow

his head, or be left behind." He wishes students to shine in ideas, and not in the knowledge of cram, and to get away from stodgy, unthinking stupidity. Students are exhorted to be keen, quiet clinicians, and in such departments as electricity and massage to maintain their position of medical advisers above the commercial interests of curative establishments.

To graduates he recommends, as far as attainable, Sunday as a day of worship, reading, and rest; and what he says of one day in the week he says also of some minutes in every day. "Then when the New Song is sung we may find ourselves among those who could learn that song, for they were redeemed from the earth." The Professor could have cited Golding Bird in London, James Miller in Edinburgh, and Dr. Cheyne in Dublin, as men who revered the Sabbath, and proved in their lives that the highest professional distinction and Christian meekness and excellence are eminently compatible and successful in the best sense.

The Science and Art of Prescribing. By E. H. COLBECK, B.A., M.D., and ARNOLD CHAPLIN, B.A., M.D. Second Edition. London: Henry Kimpton. 1906.

OF aids, compendiums, and digests, in the furtherance of medical instruction, there is certainly no scarcity. Some of these are good; some are not so good; while others, examples of book-making, are best left alone. The present work will likely continue to hold the field, for it has evidently cost its compilers not a little care and minute attention in the preparation of the matter and in the manner of its arrangement. A third of the book is devoted to the writing of a prescription and the building up of it; to the incompatibility of certain drugs, and the different forms of administering the same drugs; and to many excellent hints, classed under different heads, worthy of being remembered by every student and working practitioner.

The remaining and larger part of the little volume treats of the applications of the methods of prescribing, and forms quite a miniature "Practice of Medicine." Nearly every known disease, and even some obscure maladies, have a prescription *secundum artem* tacked on, all the remedies being more or less useful, and always suggestive. A double purpose is thus served, of giving illustrative prescriptions in harmony with the title of the volume, and in affording at least a basis of consideration to the medical attendant when perplexed about

the therapeutics of a case. Each contributor initials the chapter for which he stands responsible, and both are to be congratulated on the publication of this second edition of a useful handbook, suitable in size and binding for either desk or pocket.

Heart Disease and Aneurysm of the Aorta, with Special Reference to Prognosis and Treatment. By SIR WILLIAM H. BROADBENT, Bart., K.C.V.O., M.D. Lond., F.R.S., D.Sc. Leeds, LL.D. Edin. and St. Andrews, F.R.C.P., and JOHN F. H. BROADBENT, M.A., M.D. Oxon., F.R.C.P. Fourth Edition. London: Baillière, Tindall & Cox. 1906.

THERE is no need to review at length the latest edition of this well known and truly valuable treatise. It is sufficient for us, in the first place, to recommend the work most heartily to every medical practitioner, and, in the second place, to indicate the principal alterations which have been made in the present edition. The contents have been rearranged, and chapters have been added on the pulse, disease of the coronary arteries, bradycardia, and atheroma of the aorta. The chapters on acute and malignant endocarditis, and on affections of the myocardium have been rewritten, and several additions have been made to those on angina pectoris and functional affections of the heart.

Aids to Surgical Diagnosis. By H. W. CARSON, F.R.C.S. London: Baillière, Tindall & Cox. 1906.

THIS little volume is uniform with the "Students' Aids Series," and it bears a family resemblance to the other volumes already published. The intention of the book is to provide within small compass the main points in the recognition and differential diagnosis of the more common surgical diseases. There is one chapter on methods of examination, and there are fifteen chapters dealing with surgical diseases. These are grouped so as to facilitate comparisons and contra-distinctions.

The work has been well done for the most part. The condensation is obtained without sacrificing clearness of diction, but it is aided to some extent by elimination of diseases and details in such a manner as to suggest that the book has been written chiefly to supply material for examination purposes. The subject of dislocations, for example (p. 14), is discussed in two pages, and only two are described, namely, those of the humerus ("at the shoulder"), and femur ("of the

hip"). There is no mention of varicose veins of the leg, except incidentally in the differential diagnosis of hernia. Varicocele is neglected, and there are other omissions of more or less importance.

It is somewhat strange to find, in a book mainly characterised by brevity and precision, a paragraph (p. 100) introduced by the following sentence:—"Surgical kidney is the name given to a condition of the kidney resulting from some obstructive or inflammatory condition of the lower urinary passages."

The print is clear, and the type is so varied that important words readily catch the eye. The index of five pages is not very comprehensive. Perhaps, however, the author considers more detail unnecessary in a book of this kind.

Clinical Diagnosis: The Bacteriological, Chemical, and Microscopical Evidences of Disease. By RUDOLF V. JAKSCH, M.D. Fifth English Edition, based upon the Fifth German Edition, but containing additional matter and illustrations. Edited by ARCHIBALD E. GARROD, M.A., M.D., F.R.C.P. With 172 Illustrations (many in colours), including 1 Coloured Plate. London: Charles Griffin & Co., Limited. 1905.

IT is a pleasure to call attention to the new edition of this great work, which deserves to be called a classic, though it is thoroughly modern in its character, and replete with an immense wealth of information on the subjects of which it treats. This fifth English edition is not simply a translation of the fifth German one, but may be regarded as a new edition, since it contains important matter which did not appear in the last German issue. Among the additional illustrations are figures of eosinophile cells in sputum, of a form of urinary cast which has not been previously described, and of trypanosomata from human blood, the last being printed from the original stones by permission of the Royal Society.

The original translator of the work, Dr. Cagney, is no longer with us; but the translation has been revised by Dr. Garrod, who has also contributed additional matter.

For those of our readers who are not personally acquainted with one or other of the earlier editions of this admirable work, we may indicate its general scope by giving the titles of the different chapters: I, The blood: II, The buccal

secretion ; III, The nasal secretion ; IV, The sputum ; V, The gastric juice and vomit ; VI, The fæces ; VII, Examination of the urine ; VIII, Investigation of exudates, transudates, and cystic fluids ; IX, The secretions of the genital organs ; and X, Methods of bacteriological research. The text is followed by a series of bibliographies, one for each chapter, and occupying collectively 70 pages ; while the last 22 pages of the book are devoted to a double-column index.

The Transactions of the Edinburgh Obstetrical Society.
Vols. XXIX and XXX. Edinburgh: Oliver & Boyd.
1904 and 1905.

THESE two volumes are fairly well up to the standard of the previous issues of the Society's *Transactions*. The following are perhaps the most interesting papers :—

"The Use of Bossi's Dilator," by J. W. Ballantyne (vol. xxix).—From an experience of eight cases in which the writer has used this instrument, he concludes that it is an exceptional remedy for exceptional conditions, and ought to be used only by experienced hands and brains. With these restrictions he considers it a valuable help in midwifery. He prefers Bossi's four-bladed dilator to the other types.

"Malignant Uterine Complications of Fibromyomata of the Uterus," by F. W. N. Haultain (vol. xxix).—Sarcomatous degeneration is rare (4 in 1,250 cases). Possibly encapsulated sarcomata are degenerated fibromyomata. The association of fibromyoma with adenocarcinoma is not uncommon, but it is rare to find cancer of the cervix associated with fibroid of the uterus. This the writer thinks is due to the fact that such patients are generally sterile, and so the chief predisposing cause of cervical cancer—namely, laceration—is absent.

"The Application of Bier's Treatment to Inflammatory Affections of the Female Genital Organs," by E. W. Scott Carnichael (vol. xxx).—As a result of many observations in Professor Martin's wards in Greifswald, the writer is convinced that absorption and suppuration supervene much more rapidly with this than with other forms of treatment.

"Pathological Condition of the Ovaries as a Possible Factor in the Etiology of Uterine Fibroids," by Malcolm Campbell (vol. xxx).—The author's theory is that uterine fibromyomata are due to an excessive and pathological secretion from the ovaries. He bases this conclusion on the following :—

1. Uterine fibromyomata are perivascular in origin.

2. The normal ovarian secretion, conveyed to the uterus in the blood-stream, prevents atrophy of the uterus.

3. In pregnancy ovulation is largely in abeyance. He suggests that this may be the cause of an increase of the ovarian secretion, and that this again may be the cause of the hypertrophy of the uterus. In the ovaries removed from twenty cases of hysterectomy for uterine fibroid, he observed a considerable degree of abeyance of the function of ovulation, together with enlargement of the ovaries, and argues that on the above hypothesis there will be an increase of the ovarian secretion, and that this may be the cause of the increased growth of the uterus.

4. These ovaries showed also marked retrograde pathological processes in connection with the Graafian follicles. This, he thinks, may cause the ovarian secretion to be pathological, and, if so, may account for the fact that in the fibroid uterus the increase of growth is irregular and affects chiefly the connective tissue, whereas in pregnancy the growth is regular and affects chiefly the muscular tissue.

A fifth reason which might have been added is that removal of the ovaries is frequently followed by diminution in the size of the tumour. Dr. Campbell's theory is ingenious, but the underlying premises will require to be more definite before it can be accepted.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By JOHN PATRICK, M.A., M.B.

Magnesium Sulphate in the Production of Anæsthesia and in the Treatment of Tetanus. By Joseph A. Blake (*International Magazine of Surgery, Gynecology, and Obstetrics*, May, 1906).—Experiments on animals show that magnesium salts, whether injected subcutaneously or directly into the circulation, or directly applied to the nerve trunks or spinal cord, produce inhibition of nerve impulses. Injected subcutaneously, complete anæsthesia and relaxation lasting two or three hours can be produced without impairment of vital reflexes, the animals recovering completely. Large doses produce death by inhibition of respiration. Intraspinal injection by lumbar puncture of 0·06 gramme for every kilogramme of the animal's weight rapidly produces paralysis, both sensory and motor, of the caudal extremities, which, gradually extending upward, involves the upper extremities and then the sensorium, causing apparently complete narcosis which lasts for several hours, the animals finally recovering without

symptoms. In monkeys the injections were repeated several times without ill effects. Death was due to paralysis of the respiratory centre, so that artificial respiration was in some experiments kept up for many hours, the heart going satisfactorily all the time, and the animal recovered.

The details are given of fourteen cases operated on by different surgeons in New York, in which spinal anaesthesia by magnesium sulphate was used. The duration of the operations varied from thirteen to seventy-five minutes. In all cases there was a period of local anaesthesia, whose duration was half an hour to two hours, after lumbar puncture. The anaesthesia spread upwards till general anaesthesia and coma resulted. The duration of the local anaesthesia—the abolition of sensation in the lower extremities, perineum, anus, genital organs—in some cases lasted as long as thirty to forty-five hours; that of the general anaesthesia from not being present at all up to ten hours. Paralysis of the lower limbs appeared in about one hour, as a rule, and lasted for several hours—in one case for forty-six hours and in another for nearly three weeks. The respiratory rate was slowed in all the cases—in two, down to ten respirations per minute. In these two cases the solution was withdrawn by lumbar puncture again, and the spinal canal washed with normal saline solution, with excellent effect on the respiratory rate. Even when the most profound effects were noted, the heart's action was regular and moderate, and the blood-pressure was not lowered. In eight of the fourteen cases a very small quantity of chloroform was administered as an adjuvant, notably in cases where the operation was begun in the period of local anaesthesia. In two cases (markedly alcoholic individuals) there was no anaesthetic effect, loss of motion and slight slowing of respiration being the only symptoms present. The dose of the magnesium sulphate was regulated by the body-weight—1 c.c. of a 25 per cent solution to every 20 to 25 lb. being found to be suitable.

The author cannot recommend its general use as an anaesthetic, on account of the variableness of its effects, even if spinal anaesthesia were as desirable as anaesthesia by inhalation. It may be said for it that it has no depressing effect on the heart, and that in full doses it is practically a general anaesthetic—two points of difference from cocaine. Its prolonged action may make it useful in the treatment of aneurysms by compression.

The author gives in very full detail the story of a case of tetanus treated successfully by spinal injections of magnesium sulphate. The patient was a boy, aged 15, weighing 115 lb. His injury was crush of fingers, and the symptoms appeared seven days after the injury. On the day after admission the jaws could be separated for three-quarters of an inch; the sternomastoids were in spasm. On that day the fingers were thoroughly dressed, and two doses, 40 c.c. and 20 c.c., of tetanus antitoxin were injected, the first into the spinal canal and the second into the median basilic vein. Next day more muscles became involved; opisthotonos was well marked; 35 c.c. antitoxin were injected by spinal puncture. On the fourth day after admission—the eleventh of illness—there was almost constant opisthotonos; temperature, 103° to 104°; pulse up to 112; it was decided to try magnesium sulphate by lumbar puncture; 4.5 c.c. of a 25 per cent solution of magnesium sulphate in water were injected. In two hours and three-quarters the patient was stuporous; neck spasm was lessened; opisthotonos was gone; complete anaesthesia; paralysis of legs. Six hours after injection sensation had returned to body generally; no pain; temperature, 102.6°; pulse, 104; respirations, 14; patient was able to swallow without difficulty, and took nourishment well. The effects of this dose lasted for thirty-three hours, when the symptoms all returned. Another injection of the same dose was made, and within an hour the patient began to feel more comfortable, the convulsions being less. In two hours and a half he was relaxed and asleep. These good effects endured for nearly a day and a half. The opisthotonos and convulsions returned, and a third dose was given, thirty-seven hours and a half after the second, this time 8 c.c. of a 12½ per cent solution being used. The same results as before followed within an hour or two. This dose kept the boy's symptoms well in hand till next day, when a fourth dose (the same as the third) was given, the

interval being twenty-nine hours. The opisthotonos did not return for two days; it was not persistent; and for the next three days the boy was kept comfortable with morphine and chloral. On the sixteenth day of the disease, and the sixth after the last injection of magnesium sulphate, the opisthotonos became more severe, and there was increased rigidity of the jaw muscles, with considerable pain. A fifth injection was administered, with marked relief. After this, although the convulsions returned, they were much less frequent and severe, and gradually disappeared, so that by the thirty-first day of his disease he was practically well.

The following points are claimed for the treatment of tetanus by spinal injections of magnesium sulphate:—

1. A marked effect in restraining the convulsions and relieving pain.
2. Lessening of the spasm of the muscles of mastication and deglutition, thereby permitting feeding.
3. Its action is continued for twenty-nine to thirty-seven hours without cardiac depression.
4. Repeated injections produce no harmful effect, except inhibition of the bladder, necessitating catheterisation.

Nothing specific in its action is claimed. All that is claimed is that the convulsions may be controlled, the spasms of the jaws and muscles of deglutition lessened, and the patient's life prolonged by preserving his strength until he is able himself to manufacture the necessary antibodies and rid himself of the disease.

DISEASES OF CHILDREN.

By JOHN WAINMAN FINDLAY, M.D., F.F.P.S.G.

The Use of Citrate of Soda in Infant Feeding. By Henry L. K. Shaw, M.D. (*Archives of Pediatrics*, March, 1906).—This paper contains the results of laboratory experiments and clinical trials made with cow's milk modified by the addition of citrate of soda. The idea of modifying milk by this means was first suggested by Wright twelve years ago, and recently Poynton and several French clinicians have used it in the treatment of cases, with no small measure of success.

For the coagulation of milk by rennet, calcium salts are necessary, and the curd so formed differs very materially from that produced by an acid. According to Chapin and Southworth, the calcium combines with the casein, forming calcium casein, which, through the action of the rennet, is changed into calcium paracasein, a soft, tender clot. This substance, however, in the presence of the acids of the stomach (lactic or hydrochloric), becomes free paracasein, and finally hydrochloride of paracasein, a tough, dense clot, extremely difficult of digestion. If the soft calcium paracasein be not precipitated, the tougher free paracasein clot will not be formed, and it was to hinder the formation of calcium paracasein by precipitating the calcium salts that Wright suggested the use of citrate of soda.

Experimentally this author has found that the addition of citrate of soda to the milk materially modifies the condition of the curd. With a minute quantity of the salt a soft curd is produced, and as the amount of the citrate is increased the curd becomes more finely divided and is formed more slowly, until finally, with a sufficient amount, no coagulation results. The experiments were carried out *in vitro*. To test-tubes containing 5 c.c. of milk were added 1 c.c. of varying strengths ($\frac{1}{2}$ per cent to 4 per cent) of citrate of soda solution and, immediately before placing in a water bath at a temperature of 40° C., two drops of rennet. Control tubes with plain milk and rennet, and plain milk, 1 c.c. water and rennet, were also put up. The time required for coagulation, and the condition of the curd, were to be noted. Coagulation

occurred in the tubes with the citrate solution when below 1 per cent, while when solution of citrate of soda was above 1 per cent no coagulation took place. In the two control experiments a solid curd was obtained. It was found that in those tubes with the greatest amount of citrate of soda, and in which no coagulation resulted, the addition of a few drops of a 2 per cent solution of calcium chloride produced an almost immediate coagulation. In the tubes with less than 1 per cent of sodium citrate, boiling the milk was found to lengthen the time required for coagulation, but with 1 per cent solutions and over the same results were obtained as with the unboiled milk.

Citrate of potash was also experimented with and gave similar results.

The chemistry of the above reaction is not known, but is said by Poynton and Wright to be due to precipitation of the excess of calcium salts, though the author (Shaw), in conjunction with Dr. E. J. Wheeler, experimented with large quantities of milk and failed to find any evidence of precipitation.

In the paper are given reports of twenty-two cases in which this method of treatment was practised. In five cases the children either commenced or continued to lose weight after its inception. One patient remained *in statu quo*, but the remaining sixteen children all gained in weight on an average of $\frac{1}{2}$ to 5 oz. per week. In some of these last there was at first a slight diminution in weight, but ultimately the results were all good—in some very good. The control of vomiting due to chronic gastric catarrh was a very striking effect of this treatment, which is specially useful in cases of dyspepsia with vomiting.

The preparation of the food mixtures is simple, as no attempt at percentage modification is made. The milk is diluted with water in proportions varying from a quarter to three-quarters parts milk. The citrate of soda is kept in a solution having a strength of 10 grs. to 1 dr., and to each feed this is added in the proportion of 1 gr. of citrate of soda to each ounce of milk; occasionally, and more especially in cases of very persistent vomiting, the amount of sodium citrate may be increased temporarily to 3 grs. to each ounce of milk in the mixture.—L. F.

In a paper entitled "Some Remarks on Infant Feeding, with Special Reference to the Employment of Citrate of Soda," Dr. Wynn discusses this question at some length in the *Birmingham Medical Review* (March, 1906). In the introductory portion of his paper human and cow's milk are compared, and great stress is laid on the fact that the qualitative, rather than the quantitative, differences between these two foods are the more important. Human milk is alkaline in reaction, while cow's milk is acid. In the former the casein and albumen are in equal proportion, while in the latter there are 6 parts of casein to 1 part of albumen. Not only is albumen much more easily digested than casein, but cow's casein is much more indigestible than human casein. In human milk fat is in a finer state of division, there is much more lecithin, there are more nitrogenous extractives and a greater amount of phosphorus than in cow's milk, while the latter contains six times more calcium than the former. It is obvious, therefore, from the above, that it is chemically impossible to transform cow's milk into human milk, and that the important difference over which we have any control is a mechanical one. The chief reason for the indigestibility of cow's milk, and the one the citrate of soda method is designed to combat, is the fact that it produces a much denser clot in the stomach than human milk. The density of the clot of cow's milk is due to (1) the larger proportion of casein and its chemical differences; (2) the smaller proportion of fat and soluble albumen, which in human milk mechanically loosens the clot; (3) the fact that cow's milk contains six times as much calcium, and three times as much acid, as human milk.

In modifying cow's milk (1) the relative proportion of casein to albumen should be reduced; (2) the amount of fat and sugar should be increased; and (3) the amount of calcium should be decreased. For the attainment of this, many and varied are the methods which have been employed, but perhaps, after all, the simplest, and a very satisfactory one, is dilution, preferably with

milk whey, and the subsequent addition of cream and milk-sugar. The latter part of this process is, at least by the poor, often omitted, on account of the trouble and expense entailed; and Poynton, acting on Wright's suggestion, inaugurated the citrate of soda method. This method abandons the attempt to correct the proportion of albumen and casein, and aims only at increasing the digestibility by lessening the density of the clot. This is done by adding citrate of soda, which, if in sufficient quantity, will entirely prevent clotting. But as a certain amount of clot is necessary for stimulating the functions of the stomach and developing the intestinal tract, merely 1, 2, or 3 grs. of the salt are added for each ounce of milk used.

This author has practised this method of artificial feeding in sixty-nine infants with milk dyspepsia, and speaks very highly of it indeed. It predisposes neither to rickets nor scurvy; in fact, it may be distinctly anti-scorbutic. It is cheap, easily worked, and consequently a very suitable method of infant feeding among the poor and at outdoor dispensaries. He further states that he has used it in the case of adults kept on a milk diet for any length of time, and in whom, as in cases of gastric ulcer, clots might be dangerous.—L. F.

Polyneuritis as a Sequel to Rubeola. By MM. Eng. Revilliod and Ed. Long (*Archives de Médecine des Enfants*, March, 1906).—A. B., a boy, æt. 9 years, contracted "German measles," the only symptom of which was a morbilliform eruption. Four days later he complained of a slight headache and developed a conjunctival catarrh. Six days after the onset of the headache and conjunctivitis, motor paralysis of the inferior limbs appeared, and, gradually increasing in severity, extended to the trunk and upper limbs. There was paralysis of right external rectus muscle. There was some neuralgic pain, slight at first, but latterly becoming more severe. The paralysis persisted for three weeks, when it thereafter gradually improved, and by the end of two months had entirely disappeared. There was no implication of the sphincters. The tendon jerks were absent, but the cremasteric reflexes were retained. There was neither muscular atrophy nor any reaction of degeneration. The authors draw special attention to the diplopia, caused by paralysis of the right external rectus, and to the facts that the muscles of the trunk were more severely paralysed than those of the limbs, and that those of the pelvic and shoulder girdles were more affected than those of the legs and fore-arms. There was absolutely no suspicion of diphtheria, or of any affection other than the "rubeola," apyretic in this case, which could have had any relationship to the onset of the motor paralysis.—L. F.

PATHOLOGY.

By JOHN H. TEACHER, M.D.

Reports of the Commission on Mediterranean Fever. By W. H. Horrocks and J. Crawford Kennedy (*Journal of Royal Army Medical Corps*, May and June, 1906).—Conclusions drawn up to the end of November, 1905, as to the mode of entrance of the micrococcus melitensis into the human body, are to the effect that there is no evidence that Mediterranean fever can be contracted by contact with cutaneous surfaces uncontaminated by urine. Experiments on monkeys likewise appear to exclude external parasites and skin contact as means of transmission, and direct attention to the absorption of infected urine as a very important factor. Dry dust contaminated with cultures from the spleen of victims of Mediterranean fever was found to be capable of infecting monkeys, and dust similarly infected by means of urine from patients gave rise to infection in goats. Subsequently this mode of infection was also demonstrated in the case of monkeys. Ambulatory cases

of Mediterranean fever have been observed, and there is no doubt that opportunities for the production of infected dust are plentiful in Malta. Dr. Horrocks, however, believes that infected goat's milk and infected mosquitoes play a greater part in the causation of Mediterranean fever than infected dust. Mosquitoes have been found to harbour the organisms, but experimental demonstration of infection by means of these insects has not yet been unequivocally successful.

The organism has been found in the following situations in the human body :—Constantly in the spleen and liver, frequently in the kidney, and occasionally in the bile, urine, blood, and bone marrow. A distinct advance is also held to have been made by the discovery that the lymphatic glands are great receptacles for the micrococcus, one or more groups being constantly infected. This was also found to apply to animals. On the other hand, it has been demonstrated that the organism, although it must obtain access to the intestines, does not multiply in them. The path of absorption may be the respiratory or alimentary tracts. The earlier work appeared to indicate that the presence of abrasions greatly facilitated infection. The incubation period may extend from one up to two months.

Examination of the goats of Malta revealed a considerable amount of infection of the herds. Moreover, it was found that they harboured the organisms for many months after apparent recovery from the disease. The micrococcus was recovered from the blood, but with greater certainty from the milk or urine. In the investigation of the herds the agglutination test was employed, and the reaction was found to be obtained with equal certainty from the milk and from the blood. The examination of the milk by this method was, therefore, after a time adopted as being quite sufficient and much easier.

Dogs and mules have also been found to suffer from Mediterranean fever, but they are much less susceptible than goats or monkeys, while men appear to be more susceptible than any of these animals.

DENTAL SCIENCE.

By J. DOUGLAS BROWNLIE, M.B., CH.B., L.D.S.

Case of Healing of Comminuted Fracture in Root of Tooth.—G. W. Watson describes (*Dental Record*, May, 1906) a specimen which shows indications of this uncommon condition. Eight years prior to its extraction the patient had got a blow on the mouth from a cricket ball which loosened an incisor. For about a month afterwards it remained loose and painful, and was slightly displaced inwards. During this time the patient avoided using it, and ultimately it became firm again.

The extracted tooth showed an irregular groove extending round the labial half of the root, about a quarter of an inch from the apex, while the palatal side showed a series of grooves radiating from the ends of the labial one, running in all directions, and indicating the presence of several fragments. These are well shown in the reproductions of photographs which accompany the communication. The author draws attention to the fact that repair has taken place entirely from the pulp side, the fractures not being filled up at all externally. He remarks that had the fracture been transverse repair would probably not have taken place, "being vertical, the parts would be kept more immobile, and enable repair to take place. . . ."

Septic Infection following Alveolar Abscess.—R. E. Woodcock reports a case in the *British Dental Journal* of 15th March, 1906. The patient, aged 40, consulted him on 5th May, 1904, about an abscess in connection with the right lower second molar. On two previous occasions he had had a

similar swelling under the same tooth, but, contrary to advice, had neglected to have the tooth treated in any way. Examination showed the abscess to be deeply seated, and the tooth was extracted under nitrous oxide. No pus escaped from the socket, even when probed. The patient was dismissed "with the advice to use water in the mouth as hot as he could bear it," and instructions to report himself if the pus did not find exit by the mouth.

Two days later the author was asked to see the patient at his home. The swelling was greater, "but the expectoration showed distinct traces of pus." The next day, when seeing the patient along with his medical attendant, he reported that "something had burst in his throat" during the night. At that time he appeared to be much easier. On the following morning, four days after the extraction of the tooth, the patient was much worse and had two rigors.

A surgeon who was sent for decided to operate, although "there was no sign of the abscess pointing." Pus was found "in the deep fascia of the neck." "The patient made a rapid recovery from the operation, but on the evening of the following day pneumonia set in and he died on the morning of the 11th from septic pneumonia."

Books, Pamphlets, &c., Received.

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology, compiled for the New Sydenham Society (a Continuation of the Atlas of Pathology) chiefly from original sources. Fasciculus XXIV Bis, being XVII of the Clinical Atlas: Fractures and Dislocations of the Upper Extremity. Illustrated chiefly by Radiographs. London: The New Sydenham Society (Agent: H. K. Lewis). 1905. (Price to non-subscribers, 10s. 6d.)

Atmokaussis und Zestokaussis: die Behandlung mit Hochgespanntem Wasserdampf in der Gynaekologie, von Dr. Ludwig Pincus. Zweite Verbesserte Auflage, mit 33 Textfiguren und Tafeln. Wiesbaden: Verlag von J. F. Bergmann. 1906.

Gastric Surgery; being the Hunterian Lectures delivered before the Royal College of Surgeons of England on February 19th, 21st, and 23rd, 1906, by Herbert J. Paterson, M.A., M.B. London: Baillière, Tindall & Cox. 1906. (6s. net.)

Supplementary Essays on the Cause and Prevention of Dental Caries, by J. Sim Wallace, M.D., D.Sc. London: Baillière, Tindall & Cox. 1906. (2s. 6d. net.)

Hygiène navale, par les Drs. Duchateau, Jan, et Planté. Avec 38 figures et 3 planches coloriées. Paris: Librairie J. B. Baillière et Fils. 1906. (7 fr. 50 c.)

Diabetes Mellitus: Its Pathological Chemistry and Treatment, being Part VII of several Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition, by Professor Dr. Carl von Noorden. Bristol: John Wright & Co. 1906. (5s. net.)

- Manual of Medicine**, by Thomas Kirkpatrick Monro, M.A., M.D., F.F.P.S.G. Second Edition. University Series. London: Baillière, Tindall & Cox. 1906. (15s. net.)
- Heart Disease and Aneurysm of the Aorta, with Special Reference to Prognosis and Treatment**, by Sir William H. Broadbent, Bart., K.C.V.O., M.D.Lond., F.R.S., D.Sc.Leeds, LL.D.Edin. and St. Andrews, F.R.C.P., and John F. H. Broadbent, M.A., M.D.Oxon., F.R.C.P. Fourth Edition. London: Baillière, Tindall & Cox. 1906. (12s. 6d. net.)
- Anæsthetics, A Practical Handbook**, by J. Blumfeld, M.D.Cantab. Second Edition. London: Baillière, Tindall & Cox. 1906. (2s. 6d. net.)
- Clinical Bacteriology and Hæmatology for Practitioners**, by W. D'Este Emery, M.D., B.Sc.Lond. (Second Edition of Handbook of Bacteriological Diagnosis for Practitioners.) London: H. K. Lewis. 1906. (7s. 6d. net.)
- Consumption: Treatment at Home and Rules for Living**, by H. Warren Crowe, M.D. With 2 Charts. Bristol: John Wright & Co. 1906. (1s. net.)
- Course of Instruction in Operative Surgery in the University of Manchester**, by Wm. Thorburn, B.S.Lond., F.R.C.S. Manchester: Sherratt & Hughes. 1906. (2s. 6d. net.)
- The Public Health Acts and other Sanitary Laws and Regulations**, by Martin Elliott and Gilbert Elliott, M.R.C.S., D.P.H.Lond. London: H. K. Lewis. 1906. (5s. net.)
- "What is Truth?"** by A. Woman. London: G. Rangescroft & Co. 1905. (2s. net.)
- A Handbook for Midwives and Maternity Nurses**, by Comyns Berkeley, B.A., M.B., B.C.Cantab. With 58 Illustrations. London: Cassell & Co., Limited. 1906. (5s.)
- A System of Gynæcology**, by Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., W. S. Playfair, M.D., F.R.C.P., and Thomas Watts Eden, M.D.Edin., F.R.C.P.Lond. London: Macmillan & Co., Limited. 1906. (25s. net.)
- Green's Encyclopedia and Dictionary of Medicine and Surgery**. Vol. I.: Aachen to Brain. Edinburgh: William Green & Sons.
- Descriptive Catalogue of the Specimens Illustrating Surgical Pathology in the Museum of University College, London**. New Edition. By Raymond Johnson, B.S., F.R.C.S., and T. W. P. Lawrence, M.B., F.R.C.S. Part III.: Injuries and Diseases of the Urinary and Male Generative Organs, Breast, Skin and Subcutaneous Tissue, Nose, Ear, and Eye, Malformations and Deformities. 1906.
- Archives of the Public Health Laboratory of the University of Manchester**. Edited by A. Sheridan Delépine, M.Sc., M.B., Ch.M. Vol. I. Manchester: Sherratt & Hughes. 1906. (Cloth, 22s. net; Paper, 21s. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FIVE WEEKS ENDING 23RD JUNE, 1906.**

	WEEK ENDING				
	May 26.	June 2.	June 9.	June 16.	June 23.
Mean temperature, . . .	46·7°	54·8°	57·1°	60·7°	60·2°
Mean range of temperature between day and night, . .	31·0°	27·3°	35·0°	41·7°	27·7°
Number of days on which rain fell,	6	6	..	2	4
Amount of rainfall, . . ins.	1·11	1·55	0·00	0·04	0·78
Deaths registered,	304	292	281	271	274
Death-rates,	19·0	18·2	17·5	16·9	17·1
Zymotic death-rates, . . .	1·0	1·7	1·7	1·6	1·6
Pulmonary death-rates, . .	5·9	5·2	4·6	4·9	4·4
DEATHS—					
Under 1 year,	53	47	59	45	47
60 years and upwards, . .	72	64	55	51	54
DEATHS FROM—					
Small-pox, . . . . .	...	...	...	...	...
Measles,	9	6	10	14	9
Scarlet fever, . . . . .	...	1	...	...	1
Diphtheria,	1	4	4	4	1
Whooping-cough,	8	13	12	4	10
Fever,	1	...	...	1	3
Cerebro-spinal fever, . .	1	3	2	2	8
Diarrhoea,	7	8	12	9	12
Croup and laryngitis, . .	...	...	...	1	...
Bronchitis, pneumonia, and pleurisy,	57	52	55	42	35
CASES REPORTED—					
Small-pox, . . . . .	...	...	...	...	...
Diphtheria and membranous croup,	17	25	23	17	26
Erysipelas,	26	19	15	12	28
Scarlet fever,	26	13	21	13	25
Typhus fever, . . . . .	...	...	...	...	...
Enteric fever,	3	3	11	5	5
Continued fever, . . . .	...	...	...	...	...
Puerperal fever,	2	3	2	3	3
Measles,*	208	219	200	163	140

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 27th June, 1906.

THE
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ORIGINAL ARTICLES.

ON CERTAIN CLINICAL ASPECTS OF ARTERIAL
DISEASE.¹

By JOHN LINDSAY STEVEN, M.D.,

President, Glasgow Medico-Chirurgical Society ; Physician, Glasgow
Royal Infirmary.

THE remarks which I have to make to-night on certain clinical aspects of degenerative arterial disease are complementary to the excellent demonstration which Dr. John M. Cowan has just given us of the pathological histology of arterial disease and its relationship to the various infections. Towards the close of my inaugural address as President of this Society, delivered on 6th October, 1905, I took occasion to doubt the strict accuracy of the opinion expressed by Virchow that in the domain of the diseases of the nervous system, and of the intoxications or toxæmias, anatomical research was insufficient to guide us further. I expressed my belief that the anatomical idea or concept, including within the concept histological investigation, had still to lead us far in the elucidation of the

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society held on 16th March, 1906, after a demonstration by Dr. John M. Cowan (see p. 88) on the results of infections upon the arteries.

phenomena of disease. The demonstration we have had to-night goes far, I think, to prove the soundness of my view. Dr. Cowan has shown us on the screen photographs of minute lesions of the arteries, and has definitely related them to these very intoxications or toxæmias in the study of which, according to Virchow, "die anatomische Untersuchung insufficient ist." I cannot, however, pretend to follow Dr. Cowan into all the minute and interesting details which he has brought before us to-night. All I can do is to direct your attention to certain of the clinical aspects of this very interesting subject.

The main, if not the chief, object of Dr. Cowan's demonstration has been to show that probably the leading factor in the production of arterial degeneration, of all varieties, is the presence of poisons circulating in the blood and injuriously affecting the vessel wall. This view is certainly no new one, although perhaps it has never before been applied in such a wide and comprehensive manner as within the last eight or ten years. Twenty-five years ago, when I was a student, the chief poison thought of was the uræmic toxin, and perhaps also, though not quite so clearly, the syphilitic virus. Now, as we learn to-night, in the most conclusive fashion, many other toxæmias may give rise to the minute beginnings of arterial disease. This is an extension, or broadening, of the original view of the etiology of arterial disease, which is bound to have far-reaching consequences as regards the clinical aspects of atheroma and arterio-sclerosis.

High arterial tension.—Increased arterial tension, as revealed to the finger on the radial pulse, or by the use of the sphygmograph, is a clinical phenomenon of the greatest importance to the physician. In cases of arterio-sclerosis, the general opinion as to the etiology of the condition is that "the one common feature of all these cases is the presence of continued high arterial tension, which is now accepted as its immediate cause" (Cowan). Now, it is important, from the clinical point of view, to ascertain what is the precise relationship of high arterial tension to the etiology of arterial disease, both in the focal and the generalised form of arterial degeneration. Clinically, two varieties of arterial tension may be recognised—(1) the temporary and recurrent form; (2) the continuous form. The general symptoms of temporary high arterial tension are a hard, incompressible pulse at the wrist, a feeling of fulness in the head and of obstruction in the chest, and an audible throbbing of the cerebral vessels

when the head is laid on the pillow at night. Such symptoms are likely to be brought on by repeated errors or excess of diet, by constipation, or by nervous excitement, such as may be produced by public speaking or controversy. It is relieved by the removal of the cause, and the judicious use of aperients and the nitrites.

The continuous or persistent form of high arterial tension is, in my experience, almost always associated with the presence of chronic renal disease. It has no special symptoms referrible to the high tension *per se*, the condition of the patient being due rather to the general effects of the renal disorder. Such continuous high tension may be present for long periods of time, although no doubt it is subject to temporary exacerbations, in which symptoms similar to those of the temporary form may show themselves. This form of high tension must generally be treated by attending to the renal disease to which it owes its origin. It is obvious that, in both forms of high tension, the exciting cause of the condition is the presence of toxic agents in the blood.

Now, it must be asked, what has the presence of high arterial tension, either temporary or permanent, to do with the causation of atheroma or arterio-sclerosis? I think that the high arterial tension *per se* has but little to do with the structural alterations in the vessel wall, and that the high tension is not the cause, but the effect, of the continuous or frequently recurring irritation of the histological elements of the arterial wall by poisons circulating in the blood, and acting either directly on the intima or through the vasa vasorum, which carry the poisons actually into the substance of the arterial wall. In the continuous high tension of chronic renal disease we get simple, and sometimes enormous, hypertrophy of the left ventricle, frequently with but little evidence of disease in the aorta, but usually associated with thickening of the medium and smaller-sized arteries, obviously due to hypertrophy of the middle or muscular coat. It is not the high tension that brings about this hypertrophy of the muscular coat, but the repeated irritation of the muscular fibres by the poisoned blood. The poisoned blood may act either directly on the vessel wall, or on the vaso-motor centre of the medulla. In either case it gives rise to over-action of the muscular tissue, with resulting hypertrophy and ultimate degeneration (often calcareous) of the overworked muscular fibres. The high tension in such cases is a secondary, and not a primary, phenomenon, and is brought about, as George Johnson long ago pointed out, by over-contraction of the muscular coat.

Disease or degeneration of the arteries, whether general or focal, is not due to high tension, but to the deleterious effects of toxins on the intrinsic tissues of the vascular wall.

There can be no doubt that in elderly people we have frequent examples of arterio-sclerosis without renal disease; and in many the older the patient the more twisted and hard the arteries. Now, my experience would lead me to believe that in many of these cases the arterial change has taken place without any marked or very severe high tension ever having been present. Certainly in many of the advanced cases there is no high pressure; and in the palpable arteries of many middle-aged people, who may be supposed to be undergoing arterial degeneration, the tension of the pulse is frequently not high. In these cases, like the renal cases, the arterial change is the result of poisons in the blood: or, I take leave to think, of senile degenerative changes, notwithstanding Dr. Cowan's dictum, with which I quite agree, that old age is not an entity of disease.

The heart and arterial degeneration.—It is a commonplace, both of pathology and clinical medicine, that one of the most frequent causes of cardiac hypertrophy and dilatation, and consequent cardiac failure and dropsy, is central or peripheral arterial disease. The simple hypertrophy of the left ventricle in chronic renal disease, particularly of the interstitial variety, is well recognised both clinically and pathologically, but whether the enormous thickening that is frequently met with in the ventricular wall, usually without dilatation of the cavity, is entirely due to the increased peripheral resistance has always been a matter of doubt to me. It would almost seem as if the same causes (toxic) which had led to the hypertrophy of the middle coat of the arteries had also something to do with the great hypertrophy of muscle fibres in the wall of the left ventricle. Sometimes, in such cases of renal heart, there may be no very marked change in the peripheral arteries, with the exception of the renal arteries, which are the seat of endarteritis obliterans. The renal heart, in my opinion, is characterised by this circumstance—that the hypertrophy is limited to the left ventricle alone, and frequently death takes place without any local or generalised dilatation of the organ. The enlarged ventricle, which makes the other parts of the organ look small, has the consistence of an indiarubber ball, and not infrequently something of the shape of one when it is grasped in the hand at a *post-mortem* examination. There must be something more than high

tension concerned in the production of this type of heart disease.

The renal heart, then, must be considered as something different from the heart disease produced by central or peripheral disease of the arterial system. My experience would lead me to say that while serious heart disease, hypertrophy and dilatation of all the chambers beginning in the left, with resulting orthopnoea and dependent dropsy, is relatively frequent as the result of degenerative disease of the thoracic aorta, it is relatively rare as the result of arterio-sclerotic change in the medium and smaller arteries. Over and over again we meet with badly degenerated and rigid smaller arteries, without evidence of any serious impairment of the cardiac structure or function—another proof, to my mind, that high tension alone is not the cause of generalised arterial disease. With regard to serious atheromatous and calcareous disease of the aorta, it is quite otherwise. Here serious involvement of the heart, with the cardiac physiognomy and all the signs of advanced cardiac failure, is frequent.

Arterial disease and angina pectoris.—The relationship of angina pectoris to disease of the coronary arteries of the heart has long been recognised. There may also be a relationship of angina pectoris with high arterial tension, but whenever the angina is capable of being so related, we may doubt whether we are dealing with the true angina of Heberden. Heberden's angina is always, in my opinion, associated with some structural lesion, either in the heart wall itself or in the coronary arteries or in structures surrounding the aortic orifice. I mean here to speak only of the etiological significance of coronary artery disease. Two things may happen as the result of atheromatous disease of the coronary arteries. A relatively large branch may suddenly become blocked by thrombosis, giving rise to a large necrotic area (myomalacia cordis), and this may cause either a sudden fatal collapse or a severe and prolonged attack of angina pectoris. Or, secondly, small terminal branches of the coronaries may from time to time become blocked, each occlusion giving rise to smaller ischæmic areas, so far at each time disturbing the cardiac action as to bring on slighter anginous attacks which may be repeated at frequent intervals. In cases that recover from these recurrent attacks and survive them for some length of time, the evidence of these recurrent lesions may be found, on careful *post-mortem* examination, in the form of numerous linear patches of fibroid change scattered through the

myocardium. I have published, in my paper on the coronary arteries in the *Glasgow Hospital Reports* (1898, vol. i, p. 234), one such case where death occurred as the result of an accident some years after recovery from a series of rather severe attacks of angina, which were seen by several competent physicians, and which had led to a loading of the life for insurance. We see, then, that disease of the coronary arteries may account for the single severe prolonged attack of angina pectoris terminating fatally with the first seizure, as in the case of Dr. Arnold, of Rugby, and also for the less severe and recurring attacks which may go on for months or years.

Arterial disease and tuberculosis.—It is well known to all who have had experience of pathological anatomy, that both in the brain and in the lungs tubercles are usually developed in close relationship to the smaller arteries. In the brain in tubercular meningitis it is usually easy to demonstrate that the tubercles originate in connection with the periarterial lymphatic sheaths. Dr. Cowan has described how one side of an arterial coat may be injured by its involvement in a tubercular mass: and following the lead first given to me by my old master, Carl Weigert, I have, on a number of occasions, been able to show that the walls of the larger branches of the pulmonary artery might be seriously involved in the caseating extension of adjoining bronchial glands, the affected portion sometimes proving to be the fountain that poured the tubercle bacilli into the blood and excited a general miliary tuberculosis. Such facts as these serve clearly to show that the tubercular virus and process have a clear relationship to arterial disease. But have such pathological conditions any direct clinical significance? There is one very important clinical symptom which, I think, they help us to understand. I have long held the belief that the hæmoptysis, often profuse and frequently repeated, which is met with in the early stages of phthisis pulmonalis (phthisis ab hæmoptoe) is caused by the relationship of the tubercle nodules to the walls of the smaller arteries in the lungs. The neighbourhood of the tubercles renders the arterial wall brittle, and so a slight cough or a trifling strain may bring on a hæmorrhage, where, as yet, there is so little gross change that no actual physical signs exist which would enable us precisely to locate the seat of the bleeding. It is easy to understand the bleeding of late phthisis pulmonalis when extensive ulcerative processes are in progress, but it is not so easy to understand the profuse hæmorrhage which

sometimes occurs when all the physical evidence tends to show that there is no actual breaking down of lung tissue at all. In the close relationship of the tubercles to the walls of the smaller arteries in the lungs I believe we have a full explanation.

Arterial disease and the nervous system.—To the healthy action both of the brain and of the spinal cord, it has long been known that a healthy condition of their arteries is absolutely essential. Of such well-known conditions as rupture and thrombosis of the cerebral arteries, with their resulting dangerous symptoms, it is obviously out of place here to speak. But there are certain clinical states of the nervous system which may, perhaps, be explained by bearing in mind the phenomena which Dr. Cowan has demonstrated to-night—I refer especially to what he has shown us as to the influence of the infections in producing focal disease of the arterial system. With regard to the influence of syphilis on the arteries, and especially on those of the brain, I have always had a difficulty in forming an opinion as to whether the syphilitic poison actually primarily affected the vessel wall or whether the disease of the vessel was not secondary to the development of a gumma in its proximity. On the whole, I am inclined to the latter view as to the action of the syphilitic poison upon the arteries of the cerebrum.

Many of the minor and transient paralytic and sensory disturbances, which we meet with in practice, may, I think, be due to minute focal lesions of the smaller arteries in the brain and cord. I refer to such conditions as temporary aphasia, transient loss of power in certain muscles, which are often regarded, and frequently rightly, as precursors of more serious seizures. Such symptoms may, I think, be caused by just such minute lesions as Dr. Cowan has been demonstrating to us to-night. I think also that a certain proportion of the chronic degenerative lesions of the spinal cord are due to obliterative disease of the smaller arteries of the cord.

THE INFLUENCE OF THE ACUTE INFECTIONS UPON
THE ARTERIES.¹

By JOHN M. COWAN, M.D., D.Sc.

THERE is an old saying that a man is as old as his arteries, a saying which to-day is as true as when it was first uttered. And arterial disease is so common in Glasgow at the present day, and so frequently the cause of premature death, that its importance can hardly be overestimated.

The causes of arterial disease are, however, not fully realised. It is often the result of chronic renal disease, gout, or lead-poisoning; and alcoholism and continued hard physical exertion may occasion it.

Old age has also been considered to be an exciting factor. I have always objected to the idea that old age is anything more than a symptom-complex. During our lifetime our tissues are exposed to many injurious influences, which, as years go by, naturally become more numerous, but it is they and not the years which cause the lesions. Supple arteries are not incompatible with the threescore years and ten; Thomas Parr, for example, who died at the age of 152, is said to have had healthy vessels; but, notwithstanding, the incidence of vascular disease in elderly people is so great that it is, I am afraid, difficult to make the world believe that there is no reason why old age should not be healthy.

I have no intention of discussing the whole question of arterial disease to-night. There are many points which are worthy of attention; but our time is limited, and I only wish to consider the results of the infectious diseases upon our vessels, results which have but recently been described, and whose importance is, in my opinion, as yet barely recognised.

Syphilis, which, as the French say, loves the arteries, is well recognised as being a frequent cause of their disease, the most common lesion being that known as endarteritis obliterans. The intima of the affected vessels in these cases is very cellular and greatly thickened, the media is atrophied, and the adventitia is thickened and degenerate. The calibre of the vessel is narrowed, and thrombosis is often a sequel, and the

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society held on 16th March, 1906. A large number of micro-photographs, illustrating the subject, were shown at the same time.

consequences of the involvement of a cerebral artery, for example, are in most cases notable.

Enderteritis obliterans occurs most frequently in the smaller vessels; syphilitic lesions in the larger trunks are of a different character. These latter are always focal and do not involve the whole circumference of the vessel, though if many plaques exist, a considerable length of the artery may be involved. In the early stages they appear as sharply defined patches, distinctly elevated above the surface and soft and translucent; their size and number of course vary in different cases, and they are most often found in the first parts of the aorta. In older examples they may appear as star-shaped cicatrices, which may or may not be depressed beneath the surface; ulceration and calcification are probably less commonly present than in non-syphilitic cases, but this may be due to the fact that death usually occurs at a comparatively early age. At anyrate, such changes have never been extreme in any of the syphilitic cases which I have examined.

Microscopic examination of such a patch shows that all the coats of the vessel are abnormal, and that this is due to endarteritis obliterans of the vasa in the outer coat. These little vessels are generally greatly altered and their lumen is much narrowed, and they may be surrounded by little collections of mononuclear cells, which, however, may be found even in considerable numbers quite a distance away from the vessels. This cellular infiltration is best marked in early examples; in older specimens the adventitia is thickened and sclerosed.

The media presents various appearances in different cases. In a very early example all that may be seen is a general thinning of the coat and a paucity of muscle cells, but in older specimens little areas of necrosis are visible, and calcareous deposits may be found in them. Finally, the necrotic areas are invaded by a very cellular granulation tissue, and the media may be wholly replaced and all its proper structure obscured by the vascular new-formation.

The elastic stains show the medial changes in a very striking manner. The areas of necrosis appear as little "windows" of pale granular *débris* among the deeply stained regular and wavy normal elastic matrix, and if the media proper is wholly destroyed, the gaps in it can be seen very distinctly.

The intima in the early stages is always thickened and degenerate, and the medial granulation tissue may, in extreme cases, be seen to penetrate its outer layers.

The lesion is evidently due to the vasa disease; the nutrition

of the parts is interfered with and atrophy or necrosis is the result.

I have gone into detail in this matter for two reasons. I do not think that the influence of syphilis upon the blood-vessels is as yet fully recognised by the profession, and, secondly, the same types of lesions may be produced by other infections.

Endarteritis obliterans may be the result of, for example, a tuberculous meningitis, and many of the symptoms in this disease are evidently the result of vascular fault. It also follows the specific toxæmias of acute rheumatism, diphtheria, &c., without any gross local lesion.

Atheromatous patches, of recent origin, translucent and soft rather than white and hard, are, as you know, not infrequently found in the vessels of persons who have died of the acute infections. They have been observed in almost all these diseases, and I need not weary you with an enumeration. In enteric fever, for example, Dr. Thayer found fresh patches of atheroma in 21 out of 52 *post-mortems*. Occasionally the patches are related to vasal endarteritis in exactly the same way as the syphilitic cases, but sometimes they may have a different origin. In a few instances bacteria have been found in the lesions, the so-called infective endarteritis, and in some the observers have come to the conclusion that the infection must have occurred from the blood-stream, that the endarteritis was primary and not the result of vasal damage. One need not expect to find bacteria in every case which originates in such a way. The bacteria may have been killed in the local reaction, or their toxins may have produced the result. In an example of fresh atheroma from a case of phthisis which I examined, the primary lesions seemed to be intimal. The media was but little altered, and only in its innermost layers immediately underneath the thickened patch. And in some other early examples from cases of pneumonia the origin of the lesion seemed similar.

There is another series of lesions which may be produced by the acute infections. Little collections of mononuclear cells are not infrequently found in the different organs, sometimes immediately around an arteriole, sometimes a little distance away. The special cells of the viscera in which such changes occur may be damaged if the lesion is considerable, but in slight cases appear but little abnormal. These mononuclear collections may be very extensive and widespread, and I have found them in the cardiac muscle, in the aortic adventitia, in the liver, and in the kidneys, in different diseases. Dr. Thayer, some years ago, on investigating the arterial

pressure in patients who had suffered from enteric fever, found that it was generally elevated after an attack, and that the vessels themselves were palpable to the finger more frequently in these patients than in others who had not suffered from the disease. I quite realise that the majority of cases of hypertension result from causes which have no connection with the infections. Increased arterial tension is most frequently the result of chronic renal disease; and other causes, repletion, relative or absolute, as Professor Clifford Allbutt suggests, or gastro-intestinal fermentation, as Dr. Russell thinks, are probably also causal, but none of these will explain Dr. Thayer's results. Every person who has suffered from enteric fever does not over-eat himself; every attack is not followed by indigestion; every case does not end in chronic renal disease. These mononuclear collections are not by themselves, individually, a serious matter, but their cumulative action, in cases where they are numerous and widespread, may quite well lead to interference with the minute vessels over so large an area that the peripheral resistance is definitely increased. Hypertension is always, I suppose, the result of peripheral obstruction, and in certain cases may be produced in this way.

Other lesions have yet to be discussed. The aortic elastic tissue, for example, seems always to be affected in these diseases. Normally it shows on special staining as clear, crisp, curly fibres of varying thickness, and with a definite longitudinal arrangement. But in the diseases to which I am referring (pneumonia, phthisis, enteric fever, peritonitis, &c.), the regular arrangement is obscured and the fibres are blurred, indistinct, and swollen. Their function, one would imagine, must be greatly interfered with.

Dr. Klein, many years ago, described another change which he had observed in the renal and splenic vessels in scarlatina. Little masses of hyaline material were present outside the intimal lining, for sometimes a considerable length of the vessel, though only a part of the circumference was affected. Dr. Chapman has recently corroborated his results, and Dr. Ferguson has observed it in small-pox, so that it appears to be more common than has been hitherto supposed.

I do not wish you to misunderstand my position. I am not arguing that acute disease is the cause of all the arterial lesions which may be met with; I am not even arguing that it is a common cause: but I wish you to recognise that arterial disease, which is far most frequently the result of chronic causes, acting perhaps in a slight degree over long periods of

time, *may* be produced by bacterial causes acting acutely and for a short period of time. It is, I think, quite conceivable that even though the acute lesions, if I may so speak, are of little moment at the time, they may, as places of diminished resistance, allow the usual causes, while these are still slight in their action, to take effect; they may allow a result of a notable kind from the action of conditions which, in a healthy person, would produce no result; and in a few instances they may by themselves produce gross disease.

The whole subject, as I said at the beginning, is large and complicated. A man of sixty suffers from the ailments of forty years; even if he would, he could not accurately detail all his trifling ailments, though their collective result is now so manifest; their interaction cannot be appreciated; and the real cause of a gross lesion can rarely be discovered. That is the reason, I think, why our present knowledge is so fragmentary. We have begun at the wrong end, and we have tried in our laboratories to reconstruct the process by which the results were obtained, and our trials have been ineffectual and useless; and it is thus, I think, that the influence of the acute infections has been overlooked, and it is on this account that I have tried to emphasise their importance to-night.

THE PHYSIOLOGICAL AND THERAPEUTIC ACTIONS OF HIGH-FREQUENCY CURRENTS, WITH ILLUSTRATIVE CASES.¹

By JAMES R. RIDDELL, L.R.C.S. EDIN., &c.,
Medical Electrician, Glasgow Royal Infirmary.

AN electric current depends for its characters upon the nature of the force producing it. This producing force is called the E.M.F. It is measured in volts. When the producing cause acts steadily always at the one pressure, the resulting electric current flows steadily at one fixed rate, and it is called a continuous current. If, on the other hand, the E.M.F. varies, the resulting current will vary in its rate of flow. The complete cycle of changes of rate of flow through which a current passes from any given point until it returns again to

¹ Read at a meeting of the Glasgow Northern Medical Society held on 6th March, 1906.

the same condition is called a period. The periodicity of a current means the number of periods or complete cycles occurring in one second. Currents of high frequency are such as have a very high periodicity—upwards of 100,000. As a definition we might say that a high-frequency current is an alternating one, in which the changes in the direction of its flow recur with extreme rapidity.

The investigation of the physiological and therapeutic action of these currents has to a large extent been the work of French observers. Numerous carefully-conducted experiments have been made, both on the lower animals and on man, and we have quite definite knowledge of the action of this modality on the tissues. The most striking peculiarity is that these currents can be passed through the body at very great intensities without being appreciated by either the sensory or motor nerves. Currents of a like intensity, but of very much slower alternations, such as are used in commerce, would certainly instantly kill a person subjected to them, and would also produce charring at the points of entrance and exit.

Several theories have been advanced to account for this peculiarity, that proposed by D'Arsonval being the one generally accepted. He reminds us that muscular contraction takes place each time a change is made in the rate at which a current is flowing through the body. If these oscillations are more frequent than 20 or 30 per second, the muscle becomes tetanised. As the oscillations are still further increased in speed, the neuro-muscular excitement too increases up to a certain point. From this point upwards the current steadily loses its stimulating property. He thinks it reasonable to suppose that when the oscillations attain a speed as great as that which characterises high-frequency currents, all neuro-muscular action is suppressed. This explanation might also account for the safety of these currents. The exact manner in which electricity kills is by no means clear. The principal cause appears to be by producing fibrillar contraction of the heart muscle. Now, while the intensity of the high-frequency currents passing through the body might be sufficient to set up fibrillar contraction, the oscillations are so rapid that the nerves cannot respond to them, and so no impulses are conveyed. Whether that be the explanation or not, the fact remains that currents of great intensity can be made to pass through the body without the subject being aware of it.

Another property of this form of electricity has been called by D'Arsonval "*Inhibition.*" At the point where the current enters the body anæsthesia is produced. It is quite distinct,

although very superficial, and therefore useless for surgical purposes. I have repeatedly tested this, and invariably found that after fifteen to twenty minutes' application the part to which the application had been made shows greatly lessened sensibility to the prick of the pin as compared with the skin surrounding the area.

On the circulation the action seems to depend to some extent on whether the applications are made generally or locally, though it is to be remembered that no application can have a purely local effect. When a rabbit is subjected to general electrification the capillaries, as observed in the ear, rapidly dilate, just as occurs after severing the sympathetic nerve. This is followed after a time by energetic contraction. In man the skin becomes red and moistened by perspiration if the sitting be long continued. With a mercurial manometer attached to the carotid artery of a dog, the tension was found to fall first, and then to rise and remain above the normal for some time. A similar rise in arterial tension has been recorded in man during electrification. When the current is applied locally by means of the spark, the first effect is to produce a spasmodic anæmia at the point where the spark falls. This is due to energetic vasoconstriction. It is followed by a marked red blush which lasts several hours. When the spinal column is subjected to a shower of sparks, a rapid rise in arterial tension occurs.

On respiration.—Under general electrification both the number and the amplitude of the respirations are increased. This was determined by Marie's cylinder. D'Arsonval has shown that there is an increase in respiratory combustion by the following methods:—

1. He analysed the respired air and found an increase in the carbon dioxide, and that absorption of oxygen had occurred. This was tested both in the lower animals and in man. In himself he found that, while the quantity of carbon dioxide eliminated per hour was 17 litres, during electrification it rose to 37 litres per hour.

2. Again, he determined this point by the loss of weight in animals. He put the animal into a solenoid, and placed that in a self-registering balance. Excreta were received into a vessel containing oil, so as to avoid errors due to evaporation. He made two sets of experiments. First he determined the weight lost without passing the current, and then the loss during the passage. The results were these:—

A guinea-pig, which lost 6 grammes in six hours before treatment, lost 30 grammes in six hours during treatment.

A second guinea-pig, which lost 6 grammes in five hours before, lost 24 grammes in five hours during treatment.

A rabbit lost 23 grammes in eight hours before, and 48 grammes in the same time during treatment.

Dr. Triplet states that treatment by high-frequency currents increases the readiness with which the oxyhæmoglobin is reduced. He carried out a series of experiments, extending over two years, in determining this point.

On the production of heat experiments have been made by several investigators. D'Arsonval made a chamber, with a chimney, in which was placed a very delicate anemometer. The air entered freely at the bottom of the chamber, and escaped by the chimney in the roof. The greater the heat given off by the subject enclosed, the greater the draught of air through the chimney. The heat was calculated from the speed of the current of air, indicated by the anemometer. Experimenting with a man, he found that without the electric current passing through the patient the heat given off in one hour was 79.6 calories, but while under treatment it rose to 127.4 calories. This experiment was made in an atmosphere at a temperature of 62°.

Bonniot, experimenting with newborn children, came to the same conclusions as D'Arsonval, with this addition, that there was always a sudden fall in the heat given off at the beginning of the experiment. These facts show that there is a great increase in the output of heat from the body during electrification by high-frequency currents.

The effect of this form of electricity on the excretion of urine has been the subject of elaborate experimentation by several observers. Apostoli made 761 analyses of the urine of 280 patients, his conclusions agreeing with those of others who have investigated the subject. They say:—

1. There is an increased quantity of urine passed, and it contains a greater amount of excreta than the normal.

2. There are indications of a greater activity of organic combustion.

3. There is a tendency for the proportion between uric acid and urea to approach the normal. These changes persist for several days after the treatment has ceased.

4. There is an increase in the toxic matter excreted. This was determined by intravenous injections practised on rabbits.

On micro-organisms.—There seems to be no proof that these currents have any germicidal action. Some observers state that the virulence of toxins is attenuated. Reports

on this subject are very conflicting. The probability is that where the current was supposed to have had a germicidal effect the result was due to mechanical vibration. To state briefly the conclusions drawn from the foregoing:—

Currents of high frequency—(1) have an anodyne action; (2) modify the general nutrition; (3) increase respiratory changes; (4) increase oxygenisation of the blood; (5) establish a nominal relationship between uric acid and urea; and (6) greatly increase the production of heat.

From what has been said it will be evident that treatment by high-frequency currents may be indicated in a number of very different conditions. What these are has not yet been exactly determined.

Chronic rheumatism can be greatly relieved in many cases. Drs. Laquerriere and Apostoli have treated a very large number of patients. They say that for severe cases long-continued treatment is necessary. Some of their worst cases were not relieved till they had had over two hundred sittings. They consider from twenty-five to thirty daily sittings as a minimum, and this generally requires a second course, and sometimes a third, with intervals between. They state that it is exceptional for patients afflicted with purely chronic rheumatism not to obtain marked improvement equivalent at times to a real symptomatic cure. In rheumatic conditions I have not had so much success as is indicated above. This is at least partly accounted for by my not having been able to give the treatment the extended trial necessary, and until recently I was not able to give it in sufficiently large doses. I do not consider that the treatment has been given a fair trial unless currents of at least 500 milliampères can be applied at each sitting.

The following history of a very severe case may be interesting:—

A patient, Mrs. C., consulted me with a view to having electrical treatment for rheumatoid arthritis. As she was unable to stand or move her knee-joints, which were bent nearly to a right angle, it was impossible for her to come to me for treatment. At my request Dr. Allan very kindly took her to his ward in the Royal Infirmary that she might have the currents applied there. This is an extract of the report of her case:—

Mrs. C., aged 52 years, was admitted on 23rd September, 1903, complaining of pain and stiffness of the joints. The illness began twenty-eight years ago, when the patient suffered for about a month with pain in the toes of the right foot.

Two years later her right wrist became swollen, painful, and stiff. After two months the swellings and pain disappeared, but the stiffness remained and it is still present. Six years later a similar attack occurred in the left ankle. At various times thereafter the patient had attacks successively in the fingers, shoulders, and elbow. No joint once affected ever completely recovered. Lastly, the knees were attacked, and for over a year she has been unable to walk. Apart from this illness she has enjoyed good health. There is no history of rheumatism in the family.

Present condition.—The patient is quite unable to walk or stand. The knees are flexed almost to a right angle, and can only be very slightly moved, slowly and with great pain. The one wrist is ankylosed; the joints of the fingers are so affected that she cannot grasp anything; the elbows and shoulders are slightly stiff. Treatment was begun on 23rd September, and on 13th October this note is made:—"Patient states that she has a little more pain, but the joints are a little more pliable." She was dismissed on 16th November, when the following note is made in Dr. Allan's ward journal:—"Patient much improved. She can now raise herself from the bed. She can move her knee-joints with a fair amount of comfort, and she can grasp with her hands much better than on admission. Altogether there is great improvement."

In order to give a trial in this case I arranged to put appliances into her house, and in this way the treatment was continued for over a year, with intervals. She must have had between two hundred and three hundred half-hour sittings. At the end of that time she was feeling pretty well in her general health. She was free from pain. She was able to rise without aid and stand, but she could not put her weight on one leg at a time, so that she could not walk. This case gave the method a fair trial so far as the number of treatments was concerned. Unfortunately the current strength was far too small, not exceeding 300 milliamperes.

The rheumatic cases in which I have found the greatest benefit were those suffering to a slighter degree, when perhaps several of the smaller joints were affected. Here the pain and tenderness may be made to disappear entirely and the enlarged joints regain almost their normal size. Of these cases I have had a number, and find the majority completely relieved.

Here is a fairly typical case. A lady, about 45 years old, began to suffer from pain and tenderness with swelling in some of the joints of the hand and wrist. About six months after this she was sent to me for treatment. Of the one hand

the first and second knuckles were enlarged and tender and the wrist painful and tender. Of the other the proximal joint of the thumb and of the first and second fingers were thickened, tender, and painful. She had treatment three times weekly. After four or five weeks the pain and tenderness had entirely disappeared and all the swellings were so far reduced as to be hardly noticeable.

These two examples may be sufficient to show what benefit is to be expected in chronic rheumatism. It is what might be looked for when we consider the stimulating effects this form of electricity has on the excretions and on metabolism in general.

Dr. Chisholm Williams, of London, has reported two cases of *diabetes* apparently cured by this treatment. One was a male, aged 36, who on 31st June, 1901, had 13 grains of sugar per ounce of urine and was passing $8\frac{1}{4}$ pints in the twenty-four hours. On 10th October of the same year, that is, after nearly five months of treatment twice a week, he was passing $3\frac{1}{4}$ pints in the twenty-four hours, containing 1.75 grains of sugar per ounce. On 23rd October, 1903, he was continuing well, the urine being normal. Both cases had been tried on stringent diet and with various drugs without benefit. I have treated several cases, but without benefit. At the same time it is right to state that no patient remained under treatment for a sufficient length of time. When they found no immediate benefit they discontinued attending.

Most forms of neuritis are benefited.—Under this heading I have for convenience include sciatica, neuralgia, and lumbago. I have seen acute lumbago, when the patient moved with the greatest difficulty, much benefited in one application.

In sciatica the results are variable—some are completely relieved in a few applications while others improve and ultimately get well, but do so very slowly. A considerable percentage find no benefit even from a prolonged course.

In neuralgia the results are good. Except in extremely severe cases of old standing they generally show some improvement, but not in every case. In somewhat milder cases complete relief is the rule. Here is the report on such a case:—

Mrs. C., aged about 30 years, complained of supra-orbital neuralgia on the left side. It began thirteen years ago. There was seldom more than a few days between the attacks. She had taken many different drugs, with temporary improvement but with no permanent benefit. Defects in the sight had been

corrected with glasses and the teeth had been put right without apparent benefit to the neuralgia. Treatment by high-frequency currents was begun early in 1903, and within six weeks the neuralgia was gone. After being free from it for a month, when rising from the stooping position she struck her head on the door handle. The neuralgia returned as badly as ever. A repetition of the treatment again completely removed the neuralgia, from which she was still free when, over three months afterwards, she left for South Africa. I have not heard of her since.

Another case of pain and tenderness in the spine in the mid-dorsal region, which had been present for over ten years, was completely relieved in twenty applications. The patient was a woman, about 35 years old. She was troubled most at night when lying down, and her sleep was much disturbed. She had done much to get rid of her trouble, both in the way of internal remedies and local applications. When I last heard of her, nearly one year after the treatment had ceased, she was still completely free from pain.

The following history is that of a case which may have been neuralgic in character. The patient was a lady, about 30 years old, who suffered from headaches recurring at more or less regular intervals. She had suffered from these for many years; for the last few years the attacks had occurred almost fortnightly. They usually lasted two days, one of which the patient had frequently to spend in bed. Towards the end of the attack, and for the succeeding day, she suffered considerably from thirst, and drank water freely. After about one month of treatment, the attacks became less severe, and gradually became less frequent. At the end of five months she had had nearly fifty applications, and had been free from an attack for several weeks. Occasionally during that time she had mild attacks of thirst. Nine months after dismissal she returned, as the headaches were beginning to trouble her. After treatment for some weeks she was again free from them, and she was still well when I heard of her last, nearly a year afterwards.

In *neurasthenia*, and especially in the sleeplessness that so often accompanies it, this form of electricity has a very beneficial effect. I will report two cases.

A middle-aged, well-built, healthy-looking man, in business in Australia, began to suffer from neurasthenia. He felt useless and unfit for his duties; he felt as if a weight were placed on his head, and he lost his sleep. He had to give up business for some months, and took a trip to this country.

He consulted several men here, and was treated, but did not improve. He saw Dr. Glaister, who sent him to me, three weeks before he was to sail for Australia again. He said he was not any better than when he left business. He had daily treatments, and at the end of three weeks felt a little better, but still suffered from the feeling of weight in the head and the sleeplessness, although both were improved. After stopping the treatment, however, he continued to improve, and long before getting to the end of his voyage he was quite well. I have heard from him lately—that is, more than two years after leaving—and he is still perfectly well.

The other case is that of a married woman, about 30 years old. Her chief symptom was sleeplessness. Her illness began with feeling feeble and easily excited, with repeated attacks of palpitation, and often an uncomfortable feeling in her chest. After eight or ten weeks in bed she improved a little, but the sleeplessness did not leave her. She began electrical treatment for this early in 1905, and after the first few visits the sleeplessness was greatly lessened. She continued to sleep fairly well up till two months ago, when the insomnia returned. After a course of twelve applications her sleeplessness again disappeared. This case I believe to be one of neurasthenia. In this I may be wrong. It may ultimately prove to be exophthalmic goitre. I could multiply instances such as those given above.

I would like to mention *malnutrition in infants and children*. I don't refer to those extreme cases where the children are little skeletons, but to those where they are delicate and, in spite of careful and proper feeding, cannot be got to thrive. I have had few opportunities of testing the value of high-frequency currents in these cases, but in every case the result has been most gratifying. I have had four, in children ranging from 4 months to 2 years. Three did extremely well, and one improved distinctly, but not so much as one would have liked.

One other condition I would mention, before referring to some external conditions, and that is *chronic kidney disease*. Theoretically these cases should do very well with this treatment. I have not had an opportunity of testing this yet, but I hope to investigate it soon.

The external conditions which I wish to mention are *lupus erythematosus*, *varicose ulcers*, and *hæmorrhoids*.

For *lupus erythematosus* local applications of high-frequency currents are undoubtedly the best form of electrical treatment, and, so far as I am able to find out, it is superior to any other

method. Of the cases treated by me, and who attended long enough, all have either greatly improved or got quite well. In Freund's book on *Radiotherapy* I find these results. Dr. Bissierii (Paris) gives 33 complete permanent cures out of 62 cases. Another worker reports 39 cures out of 56 cases. I will describe three cases:—

The first had the disease over almost all the face and most of the head. She has been in the hands of many physicians, but is of opinion that no treatment did any good. I treated her with high-frequency currents, static breeze (which I believe to be practically the same thing), and *x*-rays, so that she is not a suitable case for comparing methods. I am convinced, however, that the high-frequency currents were the most beneficial of the agents used. She is now practically well, except for slight areas on the top of the head, which is quite bald.

The second was a younger lady, who for several years had several spots of the disease, each about the size of a sixpence. They were disposed of as follows:—In each inner canthus, one spot: on one outer canthus, one; at the angle of the nose and lip, one; on the brow, two; behind and above the ear was a larger spot, about the size of a shilling. She had been using various applications for over two years before coming to me, but the spots had gradually become more marked in spite of these. She had treatment with me for one year, coming at first twice, and after a few months once, a week. She was dismissed cured a year ago, and is still well.

The third had only one spot at the inner canthus. It was the size of a sixpence. It disappeared after about six months' treatment.

The stimulating effect of local applications to *ulcers* is very marked. I will describe one case:—

The patient is about 45 years old, and had on her skin a superficial ulcer which was the size of a shilling. It had refused to heal for two years, although carefully treated with various dressings, and an elastic bandage worn. It was extremely tender. Varicose veins were present in the legs to a slight degree. After eight applications within three weeks, the ulcer was reduced to very small dimensions, and the pain and tenderness were quite gone. After eighteen treatments it was healed. One year later it broke down again, and her doctor sent her back to me. It healed as easily as before, and has been well now for over eighteen months.

The first case of *hæmorrhoids* I treated was three years ago. The patient was a miner, who had been unfit for work for

several months on account of pain and, to a less extent, bleeding from piles. The bleeding ceased after the third or fourth treatment, and after fifteen applications he returned to his work. Six months ago, Dr. M'Nay, of Larkhall, who sent the case, told me that the patient has remained quite free from any recurrence.

CHOROIDO-RETINITIS OF OBSCURE ETIOLOGY.

By ERNEST THOMSON, M.A., M.D., F.F.P.S.G.,

Surgeon, Glasgow Eye Infirmary; Ophthalmic Surgeon, Glasgow Maternity Hospital.

DURING the past three years I have seen two cases of choroido-retinal disease which have seemed to be outside the ordinary text-book category, and to fall, perhaps, into the class indicated by Fuchs in his text-book, where, after enumerating the causes of choroiditis, he says, "In many cases of choroiditis the cause remains obscure." Both patients were young adults. In the one, a lad of 19, the condition was acute in one eye and recent in the other eye; in the second patient, a young hospital nurse, the acute stage probably dated back to her early childhood, and only the later atrophic condition was visible to me. Both cases interested me very much, because of the great similarity of the ultimate fundus appearances; the preservation of vision, in the one case good, in the other fairly good; and the youth and healthy appearance of the patients. Both were as sturdy, healthy-looking young adults as one would wish to see, and in neither of them could any direct history be obtained of serious constitutional disease earlier in life, although it must be admitted that the second patient (the nurse) had had several attacks of phlyctenular conjunctival and corneal inflammation, such as would ordinarily be classed as strumous.

CASE I.—D. J., aged 19, pupil teacher, consulted me at the Glasgow Eye Infirmary on 21st October, 1903. He stated that he had recently discovered that on covering his right eye he could not see with the left eye, and that about a year ago he had had a similar attack, but could not remember in which eye. He had always enjoyed good health, except for scarlet fever and measles. He had not been exposed to glare of light. The

urine contained no abnormal constituent. The heart was normal, the patient's medical man could not throw any light on the matter, and the lad's parents, who appeared healthy and well-to-do, yielded no special information on the usual indirect questioning. Visual acuity—right, $\frac{5}{2}$; left, nil, except at periphery of field.

Ophthalmoscopic examination of the left eye revealed a fairly intense optic neuritis, with marked venous engorgement, and a high degree of cedema of the retina in and around the macular region.

Examination of the right eye revealed that there were patches of superficial choroidal atrophy over the whole posterior pole. In no place was the white sclerotic visible. All of them were pinkish and speckled with pigment. The disc was hyperæmic, and veins slightly tortuous.

31st October, 1903 (ten days later).—Left eye: practically all the cedema of the retina had disappeared, leaving a patch of superficial choroidal atrophy apparently involving the macula. Disc blurred and prominent. The right eye was examined again, and the macula itself seen to have escaped.

4th November, 1903.—Examination of the left eye now revealed a fresh crop of spots of choroidal exudate below the disc, and a patch of retinal cedema extending upwards from the disc.

To make the narration as short as possible, a succession of new foci of choroidal inflammation continued to appear, and then to become pigmented and settle down into quiescence. The most active new focus was the one above the disc, corresponding to the retinal cedema just mentioned. When the cedema cleared off, a large patch of superficial choroidal erosion with a scalloped margin was disclosed. After some time this began to be pigmented, and eventually all the patches showed great pigmentation, and the fundus appearances were such as to make one imagine that useful vision could never be recovered. The optic neuritis gradually subsided, and the pigment became massed into coal-black lumps.

Now, as to the vision, let us see how this tallied with the changing appearances of the fundus. It did not tally at all. I had given a bad prognosis as to sight. That prognosis proved entirely wrong. And yet, no matter whether the early or the late appearances of the fundus had been observed, I hardly think anyone would have anticipated a return to practically normal central vision. But that is what happened. From having no central vision at all on 23rd October, 1903, the eye gradually improved in function, week by week and month by

month, until on 3rd February, 1905, visual acuity (left) was almost $\frac{6}{6}$. Of course, every ophthalmologist knows that cases of intense inflammatory disturbance of the membranes of the eye do sometimes cheat him in this way, but none the less this case was rather a revelation.

What treatment was employed? Practically the whole treatment consisted of mercury in one form or another. For a part of his illness the patient passed into the hands of another practitioner, whose long experience, I may say, led him correctly to take a less grave prognostic view than I had taken; during this period he was sweated and leeches, and had mercury as well. On his return to me I simply continued the mercurials, mercury and chalk with ipecac. For a time he had inunction with 20 per cent oleate of mercury in addition. Latterly the mercury was given intermittently, with periods of tonic treatment in between.

To sum up, then, here is a healthy young man, with apparently no special family or personal history pointing to any constitutional disease, who has first one eye and then the other attacked by severe inflammation of the optic nerve, superficial layers of the choroid, and, to a certain extent, of the retina. The process is at first so intense as to lead to temporary blindness. Yet the inflammation subsides, leaving, it is true, marked changes behind it, but fortunately also leaving useful vision.

CASE II.—Nurse E., aged 25, came to see me on 16th March, 1905, because she thought she was about to suffer another attack of inflammation of the eyes, similar to those she used to have in childhood.

Both corneæ were faintly nebulous, but there was no sign of any fresh attack.

The patient returned on 13th October, 1905, with an attack of phlyctenular conjunctivitis, and now mentioned that, probably when about 8 years old, she had an attack of choroiditis which was treated by Mr. Eales. On ophthalmoscopic examination I was astonished to find a tremendously pigmented choroidal atrophy in both eyes. The macula region of the right eye seemed to be involved. But the optic discs and retinal vessels looked healthy; there were no vitreous opacities.

Visual acuity—right, $\frac{4}{8}$; left, $\frac{4}{8}$. Reads small type at 8 inches. Myopia about 1 D.

This case seemed to me to be quite on all fours with the previous case, except that here we had definite strumous signs in the eye only. It is remarkable that the patient, with such an immense amount of fundus change and with corneal opacities, was doing her work without inconvenience and was to all appearance nothing more than a little shortsighted. At the present time, seventeen years after the acute attack of choroiditis, the patient's vision remained useful—indeed, when she came to me there was no complaint of bad sight at all.

To help in our search for a cause of the choroidal disease in these two cases I would like to narrate another case which, though not quite similar, certainly reminds one of them.

On 30th April, 1897, I was asked by Dr. Balfour Marshall to see Mrs. F., a young married lady. Fourteen days previously she had gone a night journey by train and had been exposed to draughts. Almost immediately on arrival in London the right eye commenced to be red and painful, and had remained so ever since.

The patient was apparently suffering from an acute iritis. On ophthalmoscopic examination, however, the media were found to be much infiltrated and vision was greatly reduced. I have apparently no accurate note of the visual acuity, but according to my recollection it was no more than equal to counting fingers held close to the eye.

The patient had strumous scars in the neck and was slightly anæmic. So far as syphilis can be excluded in any case, it was excluded here. The patient was put to bed, atropin freely used, and mercurial treatment commenced. Iodide of potash was also given. The vitreous opacity increased for a time, and the mercury was pushed to salivation, after which a change was made to iron and arsenic. Gradually the opacity became less dense and vision improved, though there were several relapses. She was sent away for change of air as soon as possible. By 16th June there was considerable improvement, but the details of the fundus were not yet visible. After this the patient had to leave Glasgow. She saw an oculist in London who gave a rather unfavourable prognosis. He wrote to me, and called the case one of iritis. On 11th January, 1898, there was a great change. Visual acuity—right, $\frac{1}{2}$. Ophthalmoscopically, the fundus details could be seen for the first time. There was a large pyramidal patch of choroidal atrophy, extending from a broad base as far forward nasally as one could see, to a narrow apex situated about three papilla diameters from the papilla. There was a plentiful floating vitreous opacity. She had been using an injunction to the

temple of 10 per cent oleate of mercury. This was now stopped and iron continued. By 22nd February, the vision was $\frac{1}{2}$ and Jaeger 1. After this there were several relapses and recoveries. She last visited me on 2nd May, 1900, about three years after the commencement of the illness. Vision was $\frac{1}{2}$. There was immense heaping up of coal-black pigment about the patch of choroidal atrophy, and about one or two satellite patches; a few floating vitreous flakes; the macula was healthy. There was a considerable defect in the field of vision on the temporal side. The other eye was quite healthy.

Now, in this case the anterior, not especially the posterior, region of the fundus was involved, and the iris and ciliary body shared in the inflammation. Further, the disease was unilateral. The patient, however, like the other two, was young, and, barring a scar in the neck and a certain degree of anæmia, was quite healthy, and I feel inclined to place the case in the same category with the other two. But what is the characteristic of the group when one considers it? Youth and health; all the three patients were healthy in the ordinary sense, and yet they were subject to an intense inflammatory process in the eye. One may say the cause is struma or syphilis, may even say, in the case of Mrs. F., that exposure to cold accounts for the condition. Overstrain of the eyes is said also to be a cause of choroiditis. But these all seem to me doubtful causes in the cases I have related. I fear we have to end where we began in placing them in Fuchs's unnamed class.

But if it is difficult to assign a definite cause to such cases of inflammation of the uveal tract, there are certain lessons to be drawn from them.

The prognosis requires great care. It is clear that a very intense inflammation, with great reduction of visual acuity, may be consistent with good vision eventually. At the same time all cases are not so fortunate.

I am a strong believer in the use of mercury in all such cases, no matter whether syphilis be probable or not. Mercury and iodide will do wonders in many a case which is distinctly not suspected of being syphilitic.

Change of air is a great assistance, more especially, of course, in cases of distinctly strumous origin; but in all cases of inflammatory eye disease, as soon as it is safe to do so, the patient should be sent away to some other place, even from one town to another if nothing better can be done.

CASE OF OTITIC EXTRA-DURAL ABSCESS, ASSOCIATED
WITH PARALYSIS OF SIXTH CRANIAL NERVE
AND DOUBLE OPTIC NEURITIS—WITH REMARKS.¹

By J. STODDART BARR, M.B., CH.B. GLASC.,

Assistant Surgeon to the Glasgow Hospital for Diseases of the Ear, Nose, and Throat; Assistant to the Lecturer on Diseases of the Ear,
University of Glasgow.

THIS patient, a lad of 17 years of age, first came under my observation on 2nd November last, suffering from a purulent discharge from his right ear of sixteen months' duration.

The symptoms which excited alarm and led him to seek medical advice were (1) headache, which began a fortnight previously, chiefly frontal, but extending also over the back of the head, it being more or less constant and at times very severe: (2) a feeling of chilliness or slight shivering, experienced several times about nine days before coming under observation; this never amounted to a distinct rigor; (3) sickness and vomiting which recurred several times when he experienced the slight shiverings; (4) double vision and squinting of the right eye of five days' duration. There was no vertigo, with the exception of slight attacks following the syringing of the ear. There were no reliable data as to temperature or pulse before coming under notice.

When first seen, patient, although pale and ill-looking, was bright and intelligent and gave ready answers to questions. His temperature was 98° F., and pulse 70. He frequently covered his right eye with his hand to prevent him seeing double. He complained of headache. There was, however, no excessive drowsiness. There were no paralytic phenomena unless in the eye. The knee-jerks were not well marked and ankle-clonus was absent. There was no disturbance of taste or smell. The tongue was clean, but the bowels were constipated. The urine contained neither sugar nor albumen.

Ear condition.—There was considerable discharge of rather offensive matter from the right ear. After syringing the ear there was seen to be extensive destruction of tympanic membrane, only the anterior fourth remaining. Small masses of cholesteatomata protruded from the atticus tympanicus. There was no tenderness on pressure or otherwise over the

¹ Paper read and patient shown at a meeting of the Glasgow Medico-Chirurgical Society held on 2nd March, 1906.

mastoid region nor in the neck. The tick of a watch, normally heard 40 inches, was heard only half an inch off. The left ear was normal.

Eye condition.—Dr. Rowan, ophthalmic surgeon, reported as follows:—

"The right eye won't pass the middle line outwards, there is paralysis of the right external rectus causing diplopia, otherwise the eye movements are normal. The pupils respond sluggishly to light and accommodation. The left pupil is larger than the right, when at rest it is about two-thirds dilated. The pupils retain the relative difference in size even when acting. Ophthalmoscopic examination with undilated pupils showed, in right or affected side, marked optic neuritis, optic disc swollen, vessels enlarged, &c., but the edges of the optic disc can be faintly made out. The swelling amounts to about 1.5 mm. In left, the optic disc is more swollen than in the right, the edges blurred and vessels full. The swelling amounts to about 2 mm. In neither were any hæmorrhages seen."

After consultation with my father it was decided to clear out the middle ear cavities. On the day following, therefore, I performed the radical mastoid operation. The antrum was deeply situated, small in size, surrounded by dense hard bone, and filled with cholesteatomatous material which also occupied the aditus and the attic. This was cleared away and the walls were thoroughly curetted, and, although there was no special guiding track upwards, I thought it right to expose the dura mater over the roof of the middle ear, and it appeared healthy. Backwards, however, towards the sinus, the bone was noticeably softer, and, on making a horizontal incision, and removing the bone by chiselling till the sigmoid groove was opened, a small collection of pus was found between the bone and the dura mater forming the sinus, at the median aspect of the latter. The sinus being further exposed to the extent of fully an inch, its wall was found to be covered with granulation tissue, but as palpation did not indicate the presence of a thrombus, and, in the absence of signs of general septic infection, it was not opened. The cavities were douched with 1 in 20 solution of carbolic acid, iodoform powder was freely applied to their surfaces, and, finally, they were loosely packed with iodoform gauze. The horizontal part of the external wound was stitched, but the vertical portion was left open.

After the operation the temperature and pulse remained almost uniformly normal, as is seen by the chart. The

headache quickly disappeared, the pupils became equal, and the paralysis of the sixth nerve began to abate, although slowly, and it did not entirely pass off until after about three months. The optic neuritis, on the other hand, took a puzzling course. It actually increased in intensity, and on 1st December, 1905, four weeks after operation, Dr. Rowan reported that the condition suggested an albuminuric retinitis, there being exudation and some small hæmorrhages present. Dr. John Love, consulting physician, saw the patient at this stage, and he was also impressed with the resemblance to the condition seen in chronic kidney disease. Repeated examination of the urine failed to show the slightest trace of albumen or sugar. Dr. Finlayson also kindly saw the patient, and took a favourable view of the prospects, and neither Dr. Finlayson nor Dr. Love looked upon the paralysis of the sixth nerve as meaning a grave intracranial lesion.

The middle ear cavities were treated by regular packing with strips of iodoform gauze, and now the external wound has healed with the exception of a small orifice, leaving a T-shaped lineal scar. The interior of the ear is not yet completely dry; the patient's general health seems to be satisfactory.

Dr. Rowan examined the eyes on 27th February, and reported as follows:—

"Eye movements normal, no strabismus or double vision. Pupils respond normally to light and accommodation.

"*Ophthalmoscopic examination.*—Pupils fully dilated with homatropine and cocaine. *Right.*—Optic disc swollen and pinkish, neuritis passing off. The vessels, arteries, and veins, which are much smaller than normal, come forward and then curve back to the level of the fundus. No hæmorrhages seen, though carefully looked for. The macular region itself seems normal. *Left.*—Optic disc similar to the right, but paler in colour and not so much swollen. On the temporal side, about half a disc's breadth from the apparent margin of the optic disc, there are numerous white plaques parallel to the disc; vertically they extend about twice the disc's breadth, horizontally about half a disc's breadth. The individual white plaques appear about the size of an ordinary pin-head. On the nasal side of the disc there are similar white plaques, numerous but not larger than pin-points, and only visible when carefully focussed. No hæmorrhages seen, though carefully looked for. The macular region itself appears normal."

Remarks.—Three features of this case are specially worthy

of attention—(1) the absence of definite symptoms pointing to the exact nature and situation of the lesion present; (2) the presence of an intense double optic neuritis, only beginning to pass off four months after the radical mastoid operation and evacuation of the extradural abscess; (3) paralysis of the right sixth cranial nerve, which completely disappeared three months after operation.

1. Such symptoms as have been described, occurring in a patient suffering from chronic purulent middle ear disease, namely, optic neuritis, paralysis of the right sixth cranial nerve, headache, chilliness, and vomiting, *associated with normal temperature and pulse*, seemed to be significant of some form of intracranial mischief. In considering the question of cerebral abscess, which the symptoms at first suggested, it was specially noted that there was no drowsiness nor slow cerebration, that, indeed, the patient was bright and intelligent, and that there was no involvement of the third nerve; while, in considering the question of lepto-meningitis, or of septic sinus thrombosis, the absence of a high temperature, or of violent oscillations of temperature, seemed to exclude these grave conditions. The absence of pain over or behind the mastoid, and the normal temperature which existed, at all events while he was under our observation, seemed singular in a case of suppuration around the sigmoid sinus with involvement of its walls. In these diagnostic uncertainties it was evident that my first duty was to clear out the middle ear cavities and be guided by the condition found. This operation, which included the exposure of the sigmoid sinus behind and the dura mater above, proved not only a diagnostic measure of great value but a most successful therapeutic one.

2. It is, of course, well known that optic neuritis is common in such intracranial lesions as brain abscess, lepto-meningitis, and thrombosis of the lateral sinus, but to find it, and that on both sides and in so intense and persistent a form, associated with a moderately sized extradural collection of matter, is certainly much more rare. In looking over the literature of the subject, I notice that Barker, in his Hunterian lectures on intracranial inflammations starting in the temporal bone, describes a case very similar to this one; and other writers mention optic neuritis as a possible accompaniment of extradural abscess, without, however, mentioning individual cases, or that they had found it in their own experience. It is to be remembered, on the other hand, and this is an important point, that a few cases have been recorded of optic neuritis

occurring in persons with simple chronic middle ear suppuration and presenting no other symptom of intracranial or vascular mischief. Both Politzer and Barker report slight forms of such. This is, I think, well worthy of further investigation, and, through the kindness of Dr. Rowan, the ophthalmic surgeon, we are at present engaged in the examination of the eyes of hospital patients suffering from middle ear discharge, to determine whether any, and, if any, what proportion are the subjects of optic neuritis.

3. In regard to the third interesting feature, there are very few records of paralysis of the sixth cranial nerve in connection with these intracranial complications of purulent ear disease. Knapp, of New York, describes, in the *Archives of Otolaryngology*, a case very similar to this one, but different in so far that it was associated with a distinct diffuse lepto-meningitis and by the death of the patient. One would have expected that the sixth nerve would have been more frequently involved than the optic, when we consider the fact that, in its long course from the lower border of the pons to the optic foramen, it comes into much closer relation than the optic with the region of the sigmoid sinus and the cranial walls of the ear.

It is no doubt somewhat difficult to explain the exact pathological connection between such a comparatively small collection of pus in the neighbourhood of the sigmoid sinus and the nerve lesions producing these ocular phenomena. The most ready explanation is that, from the septic pachymeningitis around the sinus, there extended, by microbic infection, more deeply, a basal localised lepto-meningitis which, through the pia mater, involved the adjoining sheath of the sixth nerve or the more distant optic nerves. Such localised forms of lepto-meningitis must be very different from the fatal diffused forms with which we are too familiar in connection with purulent ear disease. Why the lepto-meningitis should remain localised and attended by no violent psychical or pyrexial symptoms, as in this case, and in others become extensively diffused with high fever and great sensorial disturbance, it is difficult to explain. I regret that no bacteriological examination was carried out, as this might have shed some light upon this point.

It might be that, on the other hand, the nerve lesions were due to a thrombosis originating in the sigmoid sinus (the walls of which were undoubtedly involved, although there were no signs of systemic infection). Such a hypothesis would imply the extension of thrombi against the circulation to the cavernous sinus, and, either by stasis of the circulation

involve the optic disc, or by pressure upon the sixth nerve cause the paralysis of the external rectus.

I hope to receive further light on these interesting points from some of the members present.

[On 9th April, 1906, the cavities in the ear were found to be absolutely dry, and the patient reported that the vision was perfect.]

CURRENT TOPICS.

RESIGNATION OF PROFESSOR J. G. M'KENDRICK.—With the close of the summer session of 1906 there passed from the active life of the University of Glasgow into a well-earned retirement, Dr. John Gray M'Kendrick, the genial Professor of Physiology. Professor M'Kendrick has occupied the Chair of Physiology since 1876, when he succeeded Dr. Andrew Buchanan, its first incumbent, and during these thirty intervening years he has seen the curriculum in the Faculty of Medicine wellnigh revolutionised. In his valedictory address to his students at the close of the summer session, he referred to the first systematic course of lectures on physiology which he attended, that delivered by the late Professor George Ogilvie-Forbes, in Marischal College, Aberdeen, in the winter session of 1861-62. In those days there was no attempt at demonstration, except by diagrams and a few microscopes on a side table. There were no experiments, and the only apparatus shown was a sphygmograph, to the demonstration of which a special hour was devoted. Since those days physiological research has made gigantic strides, and to this progress in physiological science the retiring Professor has contributed in no small degree. It was his privilege to initiate the teaching of Practical Physiology in the University of Glasgow, and to develop a laboratory there, and the extent of the progress which has been made during his occupancy of the Chair may best be realised by comparing the apparatus of the earlier days with the magnificently equipped laboratories which will be ready for opening during the first year of his successor.

Professor M'Kendrick's life has ever been a busy one. In 1857, when but 16 years of age, he had the audacity, he

himself relates, to deliver a lecture on the brain. Since that time he has been assiduously occupied in imparting knowledge to successive generations of students. Before coming to Glasgow he was assistant to John Hughes Bennett, Professor of Physiology in Edinburgh University, succeeding there the late Professor Rutherford on his removal to King's College, London. He has been Fullerian Professor of Physiology at the Royal Institution of Great Britain, has twice delivered the Thomson Lectures at the Free Church College of Aberdeen, was one of the lecturers in connection with the Gilchrist Trust, and has sat on the Council of the Royal Society and of the Royal Society of Edinburgh. His works include *Animal Physiology*, published as far back as 1876; *Lectures on the History of Physiology* (1879); *A Text-Book of Physiology* (1888), which is a standard work; *Physiology* (1896); *Life of Helmholtz* (1899), &c.

But this is not the time to pass in review the work of Professor M'Kendrick and his many claims to rank as one of the eminent physiologists of our time. He retires "to commit the active duties of the Chair to a younger man," but in his parting address he gives the promise that his work for that science which he has made his life-study is not yet complete. We quote his words—"And now I lay down my arms, not as a tired or beaten soldier, but as one who has tried to serve his time, and who now wishes to retire in favour of youth, and energy, and enthusiasm. The evening approaches, and one wishes to have some time to work on tasks that are altogether congenial, to meditate on the past, and to search the intellectual horizon with hopeful eyes for the revelations of the future." The multitude of his students, near and far, wish him many pleasant years in which to attain his aim.

UNIVERSITY OF GLASGOW.—The following have satisfied the examiners in the fourth (final) professional examination:—

FOR M.B., C.M.

Robert Stewart M'Kim, M.A.

FOR M.B., CH.B.

James Montgomery Anderson.
John Anderson, M.A., B.Sc.
Thomas Barbour, M.A., B.Sc.
George Duncan Morrison Beaton.
Charles Burns.
John Miller Hopkins Caldwell.
William Rome Cammock.

George Campbell.
William Archibald Campbell.
Henry Howard Christie.
John Sawers Clark, M.A.
James Coutts.
Thomas Lawson Craig.
Arthur Muir Crawford.

James Richan Drever, M.A.
 Ernest Milne Eaton.
 William Gilbert.
 William Gilfillan.
 Arnold Harris Gray.
 Robert Neil Guthrie.
 Charles Francis Dyer Hammond.
 William Towers Hardie.
 Robert M'Cowan Hill.
 Alexander Hunter.
 Archibald Yuill Hutchison.
 John Keys.
 James Dunlop Kidd.
 William Hendrie Kirk.
 Alexander M'Call.
 Thomas M'Crick, M.A., B.Sc.
 David Macdonald.
 James M'Farlane.
 John Robert M'Gilvray.
 William Anderson M'Kellar.
 William Ferguson Mackenzie.
 Norman Smith MacNaughtan.
 Alister Argyle Campbell M'Neill.
 Elizabeth Maud M'Vail.
 Andrew Alexander M'Whan.
 Florence Mann.

William Hislop Manson, M.A.
 Robert Marshall.
 John Miller.
 William Miller.
 Peter Mitchell, M.A.
 Edith Oversby.
 James Hogg Paul.
 Agnes Picken, M.A.
 Alexander MacMillan Pollock.
 Thomas Hood Rankin.
 Vera Dagmar Reis.
 Frederick Gordon Robertson.
 William James Rutherford.
 William Hermann Sieger.
 William Smellie.
 Thomas Baillie Smith.
 James Stevenson.
 John Stevenson.
 Thomas Strain.
 David Laurence Tate.
 Charles Samson Thomson.
 George Haswell Wilson.
 James Wyper.
 John Young (Mount Vernon).
 Morris Youdelevitz Young.

The following passed with distinction in the subjects indicated:—

In (a) Surgery and Clinical Surgery, (b) Practice of Medicine and Clinical Medicine—Robert Stewart M'Kim, M.A. (old regulations); Charles Samson Thomson. *In (a) Practice of Medicine and Clinical Medicine, (b) Midwifery*—William Smellie. *In Surgery and Clinical Surgery*—James M'Farlane, Elizabeth Maud M'Vail, Peter Mitchell, M.A.; Agnes Picken, M.A.; John Stevenson, John Young (Mount Vernon), Morris Youdelevitz Young. *In Practice of Medicine and Clinical Medicine*—John Anderson, M.A., B.Sc.; Arthur Muir Crawford, James Richan Drever, M.A.; Arnold Harris Gray, William James Rutherford. *In Midwifery*—Andrew Alexander M'Whan, James Stevenson, George Haswell Wilson.

ROYAL INFIRMARY APPOINTMENTS.—The Managers have appointed Dr. John M. Cowan, B.A., to be one of the Physicians to the wards; Mr. Robert Ramsey, M.B., Ch.B., to be one of the Dispensary Surgeons; and Miss Mary B. Hannay, M.B., C.M., to be Assistant Pathologist.

SOUTHERN MEDICAL SOCIETY: ANNUAL EXCURSION.—The annual outing of the Society took place on Thursday, 28th June, and was characterised by a new feature which will probably be continued in subsequent years, viz., the presence of ladies. The members of the Society and their lady friends travelled from Glasgow to Moffat by through carriages, and after a visit to the Well, and a walk over the Gallowhill, met at dinner in the Hydropathic. Dr. Monro, President of the

Society, occupied the chair, and after dinner proposed the health of "The King." Professor Stockman proposed "The Ladies," the toast being replied to very briefly by the President. The only other toast was that of "The President," which was proposed by Dr. Forrest. Thereafter the party had the opportunity of walking through the grounds, inspecting the baths, and playing croquet and other games, before afternoon tea and the return journey. Ideal weather conditions prevailed, and everything passed off well.

CALEDONIAN MEDICAL SOCIETY.—The twenty-sixth annual meeting of this Society was held last month in Stirling, under the presidency of Dr. W. A. Mackintosh, Stirling. There was a representative attendance from both sides of the Border. The Hon. Secretary (Dr. S. R. Macphail, Derby) read his report, which showed the membership to be 232, or double what it was ten years ago. Financially also the Society was in a stronger position than ever it had been. During the year five numbers of the *Journal* were issued, and it was hoped the members would endeavour to extend its value and interest. Dr. A. Little, of Bradford, was appointed President for the ensuing year, and Dr. J. Keay, of Edinburgh, Vice-President. Dr. John Dunlop, Bradford, and Dr. Cameron Blair, of Northern Nigeria, were elected to vacancies on the Council. It was resolved to hold the next annual meeting in Bradford. In the evening the annual dinner of the Society was held in the Golden Lion Hotel, Stirling.

BRITISH UNIVERSITY STUDENTS' CONGRESS.—The first session of the British University Students' Congress was held last month in Edinburgh, where the delegates were welcomed by Principal Sir William Turner. The object of the conference is to promote the general interests of undergraduates in the Universities of England, Scotland, Ireland, and Wales, and fifteen Universities were represented at this initial gathering. A number of social functions took place in connection with the congress, which sat for several days, and discussed a number of matters bearing on the curriculum, &c.

GLASGOW R.A.M.C. VOLUNTEERS' CAMP.—The annual camp of the Glasgow Companies of the Royal Army Medical Corps Volunteers was held at Netley Hospital from 14th to 21st July, the men entraining at Yorkhill for the South on Friday evening, 13th July. In the absence of Colonel Beatson, M.D.,

C.B., the detachment was under the command of Major W. F. Somerville, who had the assistance of Captain A. J. MacDougall, M.B., R.A.M.C., the Adjutant of the Glasgow Companies. The parade strength totalled 360 men. The usual practical work with the hospital orderlies in the great military hospital at Netley was gone through, and the course of lectures and demonstrations on sick nursing and ward duties, instituted several years ago, was again a feature of the week's training. The camp broke up on Saturday, 21st July, after being thoroughly inspected by Surgeon-General Quill, the P.M.O. at Netley.

On Thursday afternoon camp sports were held in the sports grounds in front of the hospital, kindly granted for the occasion by Colonel Twiss, and were taken part in by the regulars as well as by the men of the Corps. At the close the prizes were presented by Mrs. Quill, wife of the Principal Medical Officer.

The transport section of the Corps was accommodated, as formerly, at Portsmouth, going under canvas outside Hilsea Barracks, where the men have undergone training in waggon duties, riding, and Army Service Corps work generally, with the 25th Brigade R.F.A.

NEW AMBULANCE MAGAZINE.—In order to bring themselves into direct touch with the members of the recently organised St. Andrew's Ambulance Corps and the general public who are interested in Red Cross work generally, the Executive of the St. Andrew's Ambulance Association have decided to issue a monthly magazine under the title of *Red Cross and Ambulance News*. This will be issued as the official journal of the Association, and will contain its reports, notices of the various competitions, results, and news of the work of the Association and Corps generally. Dr. R. T. Halliday, Glasgow, has been appointed editor of the new periodical, which will make its first appearance in the course of next month.

"SPOTTED FEVER" IN GLASGOW.—The Town Council of Glasgow, in accordance with a recommendation by the Health Committee's special sub-committee on cerebro-spinal meningitis, agreed that a special meeting of the Corporation, as Local Authority for the city, be called to consider as to the advisability of including that disease for one year within the list of infectious diseases which are compulsorily notifiable to the health authorities. In making the recommendation, the sub-committee had before them a memorandum on the

subject by Dr. A. K. Chalmers, Medical Officer of Health for Glasgow, who remarks that "the disease is variously known as cerebro-spinal fever, epidemic cerebro-spinal meningitis, spotted fever, &c. It is mainly a disease of the membranes of the brain and spinal cord, but may have associated lesions in the lungs, nose, ears, and eyes. It may prove fatal in less than twenty-four hours, or it may be prolonged over several weeks. It varies also in intensity, and is liable to be confounded with other forms of brain disease. It would appear sometimes to be regarded clinically as influenza or pneumonia. It chiefly attacks children or young adults. It may appear sporadically, but epidemics have occurred in which groupings of cases have been recognised. It is known to have followed direct contact with persons sick of the disease, as in nursing or visiting them, but it has also followed the use of bedding in which they have been nursed, and the occupancy of a house which they have vacated. It is therefore infectious, although the conditions of its spread are but ill known. It is associated with the presence of a micro-organism in certain tissues of the body (Weichselbaum's diplococcus), and the occasional recovery of this in discharges from the nose, lungs, and ears suggests some at least of its methods of spread. Last year the disease occurred in epidemic form in New York, in some parts of Central Europe, and in Northamptonshire in England. The malady is characterised by acute symptoms, chiefly referable to the nervous system. The onset is usually sudden, with headache, shivering, and occasional vomiting. Stiffness of the muscles of the neck with retraction of the head may follow, and there may be delirium, sometimes alternating with apathy and stupor. There may be tenderness along the cervical or dorsal spine, or it may be more generally distributed. Squint, unequal pupils, and other paralytic symptoms have been noted. Herpes on the lips and a purpuric skin eruption are sometimes present. In the children forming a group noted, a limited number of spots were present on the skin from the third day of their illness. These were few in number, petechial in character, and irregularly distributed. In one child they were present on the abdomen and ankle, in the other on the neck and upper part of the chest, and on the inner aspect of the thigh and ankles. They were more pronounced than a typhus rash, and much more limited in distribution. Pulse and temperature both follow an irregular course, and there is usually no relation between them in the early stages. When death results, a purulent or sero-purulent exudation may be found on the under

surface of the brain or spinal cord. Were the disease made notifiable, it is to be expected that a detailed study of the symptoms presented by these cases, in which Weichselbaum's organism is present, would enable cerebro-spinal fever to be more readily separated from those other forms of meningitis with which it is so liable to be confounded."

From 10th March till 31st May, the date of the memorandum, there were altogether forty-four known cases of cerebro-spinal meningitis in Glasgow. Of the first thirty-nine of these cases, six were under 1 year of age, seven were from 1 to 5 years, fourteen from 5 to 10 years, two from 10 to 15 years, and five from 15 to 25 years, while the remainder were of various ages beyond 25 years. Of the five others, one was 6 months, two were between that age and 7 years, one was about 18, and the other was an adult. Thus it will be seen that thirty-two of the forty-four cases affected persons under 15 years of age. Thirty of these patients died.

SANITATION AND DEGENERATION.—At the annual congress of the Sanitary Inspectors' Association, held in Newton-Stewart, Mr. Peter Fyfe, Chief Sanitary Inspector, Glasgow, read a paper in which he discussed the question of the usefulness of sanitary progress in recent times. Were they on right lines? After dealing with some of the evidence led before the Committee on Physical Deterioration, he quoted the general conclusion arrived at by the Committee to the effect that they hoped that the facts and opinions they had collected would have some effect in allaying the apprehensions of those who, as it appeared, on insufficient grounds, had made up their minds that progressive deterioration was to be found among the people generally. He proceeded to say that the effort to preserve life, speaking in the sanitary sense, was two-fold. Firstly, it was curative, and, secondly, preventive. It could not be gainsaid that, speaking strictly on the scientific aspect of the question, a great mass of public health work, on its curative side, tends directly to preserve the lives of the unfit. With regard to the preventive aspect of sanitation, it looked at first sight as if prevention could in no wise be accused of aiding or abetting human deterioration; nor did he think that absolute prevention, in its truly scientific sense, could be called even by the greatest pessimist a participator in human degeneration. But, in speaking of preventive sanitation as practised, they were not thinking of real prevention, but of prevention as limited by Parliamentary statute law—a very different thing. He illustrated this point by

reference to the evils of overcrowding. Legalised sanitation respecting the purity of the external atmosphere was in much the same position. Smoke abounded under the law, because the Legislature assumed that a large mass of it was necessary for the commercial prosperity of the country. The progress of sanitation in its march against food sophistication was hampered in a similar manner. Adulterations, preservatives, and colourings were in great measure unchecked. Even when the lower classes lay down to rest, it was quite permissible that they should do so on the uncleansed material drawn from the rag-stores of this and foreign countries. It might be that the liberty of the British subject demanded that he should have the right to sleep on a dunghill if he preferred it, but surely a system of sanitation which enabled a man to lay his offspring to slumber on such a mass of filth as they found composing the flock or mill-puff beds, to be purchased in the bedding warehouses of the kingdom, was doing, by omission, not a little to encourage physical deterioration among the people. Yet he did not take a pessimistic view of things. The mills of God grind slow, and the mills of the State tried to follow the example. The Spanish proverb "Hasten slowly," seemed to be the motto of Parliament. All he asked was that they should not deceive themselves into a foolish and comfortable belief that legalised sanitation in all its varied aspects was at present working for improvement in the physical and mental condition of the nation.

SUBURBAN DISTRICT WATER SUPPLY.—The District Committee of Upper Renfrewshire have agreed to recommend the County Council to apply for a Provisional Order under the Private Legislation Procedure (Scotland) Act, 1899, to form portions of the parishes of Cathcart, Eastwood, Mearns, and Eaglesham into a special water supply district. The area indicated includes Giffnock and other districts which have been opened up by the Glasgow Corporation tramways and the Lanarkshire and Ayrshire Railway, but where feuing is hindered by the absence of a suitable water supply. A sufficient supply of excellent water can be obtained from the lochs in the parishes of Eaglesham and Mearns.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1905-1906.

MEETING VIII.—26TH JANUARY, 1906.

*The President, DR. JOHN LINDSAY STEVEN, in the Chair.*I.—CASE OF PSEUDO-HYPERTROPHIC PARALYSIS IN A MAN,
AGED 23.

BY PROFESSOR SAMSON GEMMELL.

Weakness in the legs, with dull pain in the calves and lumbar region, began when the patient was in his nineteenth year. In nine months he was forced to give up work, and, under doctor's orders, remained in bed for six months. He was then admitted to the Edinburgh Infirmary, where he was treated by massage, electricity, and Turkish baths for sixteen weeks. On dismissal he resumed work, but had again to stop after fifteen months. On 21st October, 1905, he was admitted to the Western Infirmary, Glasgow, and was then so weak that a walk of 200 yards exhausted him. There was no trace of any similar disease in his family. His gait was of the waddling type, and the head was ducked forwards and downwards with each step. To rise, he turned over on to his left side, and lifted himself on his knees, then on his toes and hands, and gained the erect position by climbing up his thighs. He had been treated with massage, exercise, and the high-frequency current, with great benefit.

II.—CASE OF FRIEDREICH'S ATAXY.

BY PROFESSOR SAMSON GEMMELL.

George S., æt. 16, was admitted to the Western Infirmary in April, 1905, complaining of unsteadiness in walking.

As a young boy he was apparently normal in every way, at work and at play. At the age of 10, however, he received a blow on the head, which kept him at home for a week, after

which he returned to school, and then discovered that in this time his power of writing had become defective; this has steadily increased, and his writing now is very erratic and unsteady. His walking, he says, has not been notably unsteady for more than about six months. He was at work as a van-boy from the age of 13 until 15, and in April, 1904, commenced his apprenticeship as an engineer. It is only over this latter period that unsteadiness has been troublesome, and so lately as the autumn holiday of 1904 he walked 21 miles across the hills. Shortly after this he noticed that he was becoming unsteady, though probably he had been so before. He fell down without cause on several occasions, and locomotion became much worse after a catarrhal attack in January, 1905. The unsteadiness was also present in his hands; he broke several teacups about this time while using them.

Patient is a healthy-looking and well-nourished boy of average height for his years—height, 5 ft. $\frac{1}{2}$ inch; weight, 6 st. 5 lb. to 6 st. 13 lb. on 26th January, 1906. He complains of no discomfort save the unsteadiness on walking.

When he is lying at rest occasional irregular choreiform movements are noticed in his arms and legs, and if he sits up the movements are exaggerated, and the head, neck, and trunk are seldom, if ever, quite still. The right shoulder is higher than the left, and the right scapula protrudes backwards, while the spine shows a lateral curvature, the convexity to the right, in the dorsal region. His habitual posture during rest is one of kyphosis, the whole column being involved, but the normal curves can be yet produced by an effort.

The facial muscles are less affected than those of the limbs. His gait is very unsteady; he reels from side to side, elevates his feet too high at every step, and slaps them down on the ground, usually heel first. He is, perhaps, more steady when walking rapidly than when moving slowly, and he has to be very careful in turning round. He is quite unable to walk along a plank, or to stand with his feet together and his eyes shut; he can only stand with difficulty in the latter situation when his eyes are open. The left foot is perhaps somewhat flat. The right shows a slight degree of equino-cavus.

There is considerable inco-ordination of movement in the upper limbs. He is unable to button his dress, &c., and he tends to "snatch" at things when trying to pick them up. The usual tests show marked inco-ordination.

On examination of the face the muscular power is found to be good, and sensation is normal. The tongue is tremulous when protruded. Masseter-jerks are present. The palpebral

fissure is perhaps somewhat small, but the movements of the eyelids and eyes are good, though there is slight nystagmus in lateral movement. The pupils are equal, the reflexes are present, and vision is good.

His speech is somewhat thick and indistinct, and he tends to slur his words; there is no staccato element in it. Swallowing is not difficult.

On examination of the arms the power is good everywhere, and sensation is normal, save for the inco-ordination. Writing is very inco-ordinate, but he can gauge shape, name coins, &c., by feel. Wrist-jerks, biceps- and triceps-jerks are all absent.

He is unable to maintain pressure with his grip. The power is good, but it is intermittently applied if the patient is distracted by conversation.

On examination of the legs, power is everywhere good and sensation is normal, save for the inco-ordination. Knee-jerks are absent, but the plantar, cremasteric, and rectus reflexes are all present.

The sphincters act normally, and the viscera seem to be quite healthy.

III.—CASES OF CIRRHOSIS OF LIVER WITH PRIMARY CANCER.

BY PROFESSOR ROBERT MUIR.

Professor Muir showed naked-eye and microscopic preparations from four cases of cirrhosis associated with primary cancer of the liver. In all four the cirrhosis was of the coarse variety and of old standing. In one there was a single large tumour mass, of about 6 inches in diameter, in another there were two or three fairly large masses, and in the other two there were multiple small cancerous nodules replacing the islets of liver tissue. In one case secondary growths were present in the lungs, whilst in two the portal vein was filled by a mass of tumour. Jaundice occurred in only one case, and was of an intermittent character. In all four cases the patients were males over 50 years of age. Microscopic examination showed that the new growths took origin from the liver cells, and in two instances the cancer appeared to be starting at multiple independent foci. In speaking regarding the cases, he said that the association of cirrhosis with primary cancer was much too frequent to be a mere coincidence; there must be some etiological relationship between the two. In his opinion the cirrhosis undoubtedly preceded the cancer,

though observers differed regarding this point. In cirrhosis it was now pretty well established that there was not only a progressive destruction of liver cells, but also a compensatory enlargement and hyperplasia of the surviving liver cells. Evidence of this was found in all four cases, and it appeared as if this reparative proliferation, for some unknown cause, transgressed the normal bounds and took on the indefinite proliferative activity characteristic of a new growth.

IV.—Dr. J. CRAWFORD RENTON showed—

1. *Case of coxa vara after operation.*—A wedge of bone was removed from each femur below the trochanter. The bones were then fractured outwards, and the legs put up in a double long splint. After union there was a gain of 2 inches, and the patient could sit down without crossing his legs. When shown he could draw up his legs freely and separate them normally.

2. A boy of 10 years, who had had gastro-enterostomy performed for stricture of the pylorus. Four years ago he had enteric fever and ulceration of the stomach with hæmorrhages. Contraction of the pylorus had resulted, and had caused a dilated stomach. On admission he only weighed 2 st. 13 lb. After operation his gain in weight was rapid, and he now weighed over 4 st.

3. Three cases of excision of the elbow-joint to illustrate the fact that after this operation a very useful joint may be obtained.

4. Case of cholecystocolostomy.

V.—Dr. GEORGE T. BEATSON showed—

1. A female patient, æt. 29, with bilateral ankylosis of the hip and spastic condition of muscles, who presented some points of resemblance to coxa vara. Congenital dislocation and coxa vara were eliminated by skiagram. Under anæsthesia there was no movement. This eliminated spastic paralysis, and confirmed the diagnosis of bilateral ankylosis. There was a history of injury at 11 years of age. A brother had tubercular hip disease. A sister had never been able to walk. The condition in this case had started four years ago, and was probably of rheumatic origin.

2. *Case of cicatricial keloid.*—One mass, situated on the shoulder, was about the size of a walnut, and had been caused by the friction of his brace. This tumour had been excised, but had recurred. Another was present behind the ear, and

had resulted from a burn. Another in the right lumbar region, from an acne pustule. X-ray treatment had been tried, but the result was not satisfactory.

3. *A vermiform appendix with the lumen dilated.*—At the tip there was a peculiar cystic diverticulum which communicated with the lumen by a small aperture. There had probably been a small perforation, as the mesentery was found wrapped round the appendix.

VI.—DR. WALKER DOWNIE showed a variety of cases, photographs, and specimens in the classroom of the Throat and Nose Department.

1. There were first two patients on whom he had performed œsophagotomy for the removal of an impacted denture.

The two operations had been done within seven months of each other, and one of the patients, previously shown to the Society, was again brought forward to illustrate some points of difference in the two cases.

In each case the denture had slipped from the mouth, and passed into the gullet while the patient was asleep.

The impacted foreign body in each case caused great pain, most marked in the neck, from which point it radiated upwards towards the ear and downwards over the chest.

The denture in the first case was a well-worn vulcanite plate, with four teeth, and, while it had no metal hooks or bands, there were two upright pins to fix the plate into two stumps.

In the second case the denture was comparatively new, and was also made of vulcanite. It was furnished with three teeth, with a sharp pointed gold wire at each end to encircle, and to bind the plate to, a canine and a lateral incisor respectively.

In neither case could the position of the plate be determined by means of the x-rays.

In the second case there was emphysema of the left side of the neck when the patient came to the infirmary.

In both cases the denture was readily caught by the coin-catcher, but in neither case could the foreign body be dislodged by it.

Killian's œsophagoscope was employed in the first case without bringing the body into view, and it was not used in the second case—the man being too ill for any prolonged examination.

œsophagotomy was performed in each case under chloroform, and the incision was made in the left side of the neck.

In the first case, when the gullet was exposed, a small area of necrosis of its wall was observed, the result of pressure exerted by a sharp corner of the tooth-plate. In the second case no injury to the wall was observed.

In each case, after the foreign body had been removed, a soft rubber tube was passed through the nose into the stomach, and the wound in the neck lightly packed with iodoform gauze. No part of the wound, either in the gullet-wall or in the neck, was stitched.

The soft tube, through which the patient was fed, was removed in one case on the third, and in the other on the fourth, day after operation, after which fluids and semi-solids were given by the mouth. In the first case a fairly large proportion of the fluid escaped through the wound during the act of deglutition for a few days, but in the second case absolutely none passed into or through the wound at any time.

In both cases healing of the incisions was satisfactory, the second patient returned to his work on the twentieth day after operation, and there has been no discomfort or difficulty in swallowing experienced as a result of the injury or of the operation.

2. Dr. Downie showed eight cases of empyema of the antrum of Highmore, on whom he had performed the radical operation with completely satisfactory results. In connection with these cases he demonstrated the application of transillumination as a means of diagnosis in ethmoiditis, in antral empyema and frontal sinusitis.

3. He showed two unusual cases of bilateral abductor laryngeal paralysis, one associated with malignant tumour of the oesophagus, and the other due to syphilis.

4. He next showed a man, 72 years of age, on whom he had performed crico-thyrotomy in 1892, by which operation he had then removed an epithelioma of the left vocal cord. The nature of the new growth had been reported on by the late Professor Joseph Coats at the time.

5. He next showed a patient in whom a large circular perforation of the soft palate, caused by syphilitic ulceration, had been successfully closed. A coloured drawing by Mr. Maxwell of the lesion before operation was shown for purposes of comparison.

6. He also showed a case where there had been partial destruction of the nasal bones with exposure of both frontal sinuses, and where nearly the whole of the frontal bone, including both tables, had exfoliated.

7. Dr. Downie next showed a case in which there had been very extensive destruction of the nose, and of the hard and soft palates, and in which the sphenoidal sinuses were exposed.

In connection with this case Dr. W. W. Christie showed Gmeinder's instrument for opening the sphenoidal sinus. This consists of two parts, and was devised by Dr. Gmeinder, one of Krause's (Berlin) assistants. (1) A straight, thin gouge, with a cutting blade, 5 mm. in length, 3 mm. in breadth, and with a thin, downward projection, 8 mm. in length at its base, in order to prevent the too deep penetration of the point of the instrument. This instrument is very thin and light. Total length, 18½ cm. Weight, 22 grammes. (2) A metal mallet with a loaded head, of a suitable weight, and shaped so as not to obstruct the view. Length, 15 cm. Weight, 85 grammes. The opening of the sinus is brought into view, a preliminary operation for this purpose having been done, if necessary. The point of the gouge is placed against the anterior wall of the sinus, just below the opening, and a sharp stroke with the mallet is given. This is repeated until a sufficient opening is made.

8. Dr. Downie also showed an instrument by which the interior of the larynx can be demonstrated to several onlookers at one and the same time, and several cases were shown by it.

9. Lastly, he showed a large number of photographs illustrating his results from the subcutaneous injection of hard paraffin in the removal of some deformities of the nose. Several cases of this kind on which he had operated with successful results were shown, together with one operated upon by a surgeon in London, in which case the injected paraffin had, during the process of injection, "wandered" into the eyelids and over the forehead, and from which it had recently been dissected out in the Western Infirmary.

VII.—CASE OF CONGENITAL HEART DISEASE.

BY DR. JAMES CARSLAW.

The patient was a little girl of 5 years, with very marked cyanosis and clubbing of the fingers and toes. The cyanosis had been noticed in early infancy, but latterly had increased, and the child suffered from much breathlessness on exertion. A recent attack of bronchitis increased the cyanosis and the breathlessness. There were characteristic changes in the blood—hæmoglobin, 110 per cent; red blood corpuscles,

9,000,000 per c.mn. There was no precordial thrill. The cardiac dulness was considerably enlarged, especially to the right. There was no cardiac murmur. Both sounds were unusually sharp, the second especially so at the pulmonic area.

VIII.—DR. COWAN and DR. J. C. M'CLURE showed a case of congenital heart disease, and illustrated the condition by means of a series of specimens from the Pathological Museum of the infirmary.

Dr. Cowan also showed a case of syringo-myelia, and Dr. M'Clure a case of rheumatoid arthritis in a child.

IX.—MR. EDINGTON showed a series of skiagrams, stereograms, and specimens illustrative of surgical conditions.

X.—DR. J. S. M'KENDRICK showed—

1. A temperature chart of a case of pneumonia followed by typhoid fever, *with unmistakable relapse*.

2. Hill and Barnard's new sphygmometer—with description of its method of application.

XI.—DR. ALEX. M'LENNAN showed—

1. Two cases of fracture of the carpal scaphoid (with radiographs).

2. Case of erosion of the radio-ulnar joint for chronic rheumatism.

3. Case of Colles' fracture operated on to remove deformity.

4. Case of external dislocation of the patella in a female child.

XII.—DR. J. H. TEACHER gave a microscopical demonstration on "protozoal parasites" (malarial parasite, trypanosomes spirochætes).

XIII.—DR. LOGAN TAYLOR gave a microscopical demonstration illustrative of "*certain diseases of the mamma*."

XIV.—DR. ARCH. YOUNG showed—

1. Photographs illustrating a series of cases of skin-grafting by a modification of the Wolfe-Krause (whole thickness of the skin) method. The photographs shown were prepared

from six cases, and showed the method of distribution of the grafts, their progress at different periods, and the substantial preservation of their integrity—hairs, follicles, &c., being completely preserved.

2. Photographs and plaster cast from a case of posterior tarsal resection of the foot (Mikulicz-Wladimiroff). The photographs showed the resultant stump from anterior, posterior, and lateral aspects. A water-colour representation of the artificial appliance fitted for the reception of the stump was also exhibited, and a similar drawing (for contrast) of the artificial foot as made for an ordinary Syme's amputation. The plates accompanying Mikulicz's original paper were exhibited.

The patient was operated on in November, 1902. The condition for which the resection was performed was one of advanced and extensive tuberculous disease of the tarsal bones, with extensive destruction of the skin and soft tissues of the heel. The anterior part of the foot was, however, healthy.

Patient was seen last in December, 1905, *i.e.*, about three years after the operation, and was found to have a most useful limb. Walking was most satisfactory; there was not even a limp.

MEETING IX.—2ND FEBRUARY, 1906.

The President, DR. JOHN LINDSAY STEVEN, in the Chair.

1.—CASE OF ROUND-CELL SARCOMA OF THE BRAIN SITUATED IN THE FRONTAL LOBES, AND BEGINNING WITH MENTAL SYMPTOMS.

By DR. JOHN LINDSAY STEVEN.

Dr. Lindsay Steven's paper appeared as an original article in our issue for March, 1906, at p. 170.

Mr. Maylard referred to a case of sarcoma of the brain on which he had operated in 1893 (see *Transactions of the Pathological and Clinical Society*, 1897). The man is still alive and well. He was struck by the remarkable differences presented by the two cases. In both the tumours were in the anterior part of the brain. The tumour in his case measured 3 inches by 2½ inches, and weighed 3 oz. It was situated in the surface, and, being encapsuled, was easily

shelled out. On microscopic section it was found to be composed of large round cells and some large elliptical cells. The symptoms were of an irritative nature, and not psychical. There were epileptic attacks, beginning with twitching of the arm and face. Headache was very severe over the frontal area. He trephined over the motor area of the arm. This led to only the posterior margin of the tumour, and further removal of bone was found necessary. Thus, in this case, the seat of pain was of more importance than the irritative symptoms as a means of localising the tumour. He considered that irritative symptoms gave indications for operation, and that psychical symptoms were a contra-indication. Even trephining for the relief of pressure, as suggested by Dr. Lindsay Steven, was not advisable, as a hernia cerebri frequently resulted.

Dr. Oswald said that he considered it a great misfortune that "mental symptoms" in a case of tumour of the brain should *per se* contra-indicate operation in the eyes of the surgeon. In his experience, tumours of the brain, with mental symptoms, were generally situated in the middle and posterior parts of the brain. Of eighteen such cases, only three were in the frontal area. When the frontal area is affected, there is a weakness rather than a perversion of the mental faculties, and in Dr. Lindsay Steven's cases this, he thought, was borne out.

Mr. Maylard asked what percentage of Dr. Oswald's cases might have been benefited by surgical influence.

Dr. Oswald said that was a question for the surgeon to answer.

Dr. Rutherford said that it was the absence of localising symptoms, rather than the presence of mental symptoms, that deterred surgeons from operative interference. He did not wish to be dogmatic, but thought he had grounds for asserting that the site where tumours were most likely to cause psychical symptoms was the anterior convolutions. Regarding the relief of pressure, Dr. Oswald said that surgeons did too little, but while he (Dr. Rutherford) would heartily welcome any new avenue for the surgeon, he was not enthusiastic on this point. He agreed with Mr. Maylard that the risk of an early aggravation of the case by a hernia cerebri was too great, not only when dealing with tumour, but also with inflammatory areas. Lumbar puncture, however, had not these disadvantages, and had the advantage that drainage could be continued if desirable.

Dr. Arch. Young asked if the transient slowing of the

pulse-rate in Dr. Lindsay Steven's case could be attributed to increase of intracranial pressure. He did not regard pain in the frontal area as of localising value, as it was associated with cerebellar tumours, and with intracranial suppuration, as well as in other cases.

Dr. Lindsay Steven, in replying, said that he did not agree with Dr. Oswald's criticism on the inaction of the surgeon. He (Dr. Steven) thought that the surgeon was doing as much as was possible in the case of brain tumours, but that his difficulties were very great in view of the numerous complications that might be present—such as multiplicity of the tumour. Again, he had no hesitation in saying that there was an alteration in the mental condition in his case, and more especially in the case which had been operated on by Mr. Luke. That case, after recovery from operation, had no recollection of having been in an infirmary. He had only an impression of having been in school, and that Dr. Lindsay Steven was the schoolmaster. Probably, however, no one would have been anxious to certify such cases, and, perhaps, they did not conform to the type of mental derangement that Dr. Oswald was accustomed to meet with, but they undoubtedly presented symptoms of mental derangement. Certain forms of glioma might cure themselves by becoming quiescent, though permanent blindness and other symptoms remained. He could give no explanation of the transient slowing of the pulse. He thanked the meeting for the way in which his paper had been received, and for the interesting criticism it had evoked.

II.—CASE OF TYPHOIDAL CHOLECYSTITIS, IN WHICH THE USUAL SYMPTOMS OF TYPHOID WERE ABSENT, AND IN WHICH THE BACILLUS TYPHOSUS WAS ISOLATED DURING LIFE FROM THE CYSTIC AND INTESTINAL CONTENTS.

BY DR. J. W. FINDLAY AND DR. R. M. BUCHANAN.

Drs. Findlay and Buchanan's paper will be found as an original article in our issue for March, 1906, at p. 177.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1905-1906.

MEETING IV.—8TH JANUARY, 1906.

The President, PROF. ROBERT MUIR, in the Chair.

I.—DEMONSTRATION OF THE METHODS EMPLOYED TO SHOW
THE EXISTENCE OF RESIDUAL HEARING IN THE DEAF
AND DUMB.

BY DR. J. KERR LOVE.

He explained the methods adopted in teaching the pupils—(1) oral method, (2) manual method, (3) oro-acoustic method—and referred to the necessity of good eyesight, good intelligence, and to the effect of the presence of hearing in the acquisition of speech. The materials which the teacher had to deal with were those of the congenitally deaf and the acquired deaf; and the objects of the teacher to restore the deaf child to intercourse with the largest number of his fellows, and to enable him to interpret the largest number of ideas. The clinical study of the material showed that in 25 per cent of the children valuable residual hearing was present—the bell, whistles, tuning-forks, and Galton's whistle were used in testing the children. Seven illustrative cases were shown to the Society.

The subject was discussed by *Professor Muir, Drs. Stoddlart Barr, Syme, and Cowan*, and the demonstration was well received.

II.—CASE OF SUPRAPUBIC PROSTATECTOMY FOR A SARCOMATOUS
GROWTH.

BY DR. JAMES LAURIE (GREENOCK).

On Saturday, 16th December, 1905, I was asked by Dr. Alexander, of Kilcreggan, to see with him a patient suffering from prostatic enlargement.

I found the patient, a hale old man of 77, in considerable distress consequent on his inability to pass urine. The urine

was passed in drops, and the total amount which he had passed that day would not exceed 3 oz. On examination I found a large and well-defined tumour, larger than a cricket ball, occupying the lower and right quadrant of the bladder. The portion of the bladder above the tumour reached the umbilicus; it was full, but not tensely distended. *Per rectum*, the prostate was felt enlarged and difficult to reach.

I proceeded to catheterise him, but the intervesical enlargement was so great that an ordinary catheter could not be got through; and the large curve of the prostatic catheter, while it enabled me to get farther through the prostate, brought only blood and no urine. Fortunately, having a trocar and cannula with me, I inserted it into the bladder, above the tumour, and drew off a small quantity of blood-stained urine; though small in amount, it gave him great relief. The puncture was sealed with collodion and gauze, and a $\frac{1}{2}$ grain morphia suppository given.

In passing the trocar into the bladder, the difficulty lay in attempting to avoid the tumour; one ran the risk of entering the peritoneal cavity, on account of the bladder being so much drawn up into the abdomen.

The history of the case was interesting in this respect, that his bladder symptoms only began in June—at least, that was the first time he required to consult his doctor; and he says he could get four to six hours' rest without requiring to pass water, but during the last fortnight he had much distress and constant desire to micturate. He had no temperature; pulse, 100; no sickness or vomiting; and he readily consented to be operated upon the following day.

As it was impossible to make any preparation of the parts previous to the operation, nothing was done until he was under chloroform. The parts were well washed with soap and water with 1 per cent lysol, shaved, cleansed with turpentine and spirit. The usual suprapubic incision was made, and the bladder opened. Immediately underneath the bladder opening was a huge tumour, which felt like a cauliflower, and apparently had burst its capsule. As it was impossible to remove the tumour entire, I scooped it out in masses with my hand; and after its removal the bladder was flushed with hot saline. The rectum and bladder were examined bimanually, the bladder was packed with gauze through a Ferguson speculum, and the parts washed with spirit. The wound was stitched with silk-worm-gut, and a drainage-tube fixed by a stitch to the skin and led into a bottle at the bedside, and collodion and

gauze dressing applied. The external dressings were removed on the third day, but the tube was not removed till the tenth day after operation, when the sutures were removed. The bladder was twice irrigated with saline solution—once for ammoniacal odour in the urine and dressing, and again for general cleansing and stimulating purposes.

The patient was from the first encouraged to sit up and keep his shoulders raised as much as he pleased. There was no special difficulty in the after-treatment. The first week I dressed him three times, the second twice, but since the tube was taken out he requires daily dressing; a tube half the diameter of the original one is now worn. At the end of the second week, on filling the bladder with saline solution and bringing the edges of the wound together, water passed *per urethram* at will. He was given milk and soda *ad lib.*, and porridge twice a day for the first week; and thereafter ordinary diet. At each dressing the parts were well washed with soap and water, thereafter with solution of bicarbonate of soda, saline, and finally dried with spirit.

The tumour, weighing 2 lb. 6 oz., was sent to Professor Muir, who states that it is sarcomatous.

I have to thank Dr. J. B. Conner for his assistance.

Professor Muir demonstrated the tumour and microscopical preparations, and gave the following pathological report:—

“The specimen sent for examination consisted of a large collection of masses and fragments of a soft tissue. Some of the masses were of considerable size, measuring up to 2 inches in diameter, and rounded in form, but most of the material was quite broken down. There was evidence of considerable hæmorrhage into the tissue, and some of the portions appeared necrosed. The total weight of the material was 1 lb. 14 oz.

“Microscopical examination showed the tissue to be sarcomatous. In most parts the cells were somewhat rounded, and of moderate size, but in places they were much larger, and showed convoluted and fragmented nuclei. In other places, again, the tissue had a somewhat myxomatous character. Hæmorrhage and necrosis were common, as indicated by the naked-eye examination.”

Mr. Maylard congratulated Dr. Laurie on his successful operation, and alluded to the surprisingly good results which were frequently obtained in many of those cases of large-sized tumours.

III.—CASE OF LUPUS VERRUCOSUS.

BY DR. ALEX. NAPIER.

S. M'M., aged 14½ years, was admitted to the Victoria Infirmary in March, 1904, suffering from well-marked lupus verrucosus involving practically the whole of the right leg and the left foot, and in addition there was caries of one of the left metatarsal bones. The appearance of the affected parts was quite typical. It was dry, quite painless, and apart from a slight itching caused patient no discomfort. It had first appeared over a year previously as a small patch on dorsum of right foot, and had spread rather rapidly upward. It was dealt with by thorough curetting followed by the thermo-cautery, the infiltration being so extensive that the operation had to be done at two sittings instead of one. Tuberculin was also steadily injected in the usual way.

The patient was dismissed in about three months, with the parts apparently soundly healed.

She was readmitted on 15th December, 1905, with recurrence of her trouble. She states that some weeks after leaving hospital the disease reappeared at several points and gradually extended. Except for the eruption the patient is in good health. She has no cough, and physical examination reveals no other form of tubercular disease.

The eruption consists of scattered patches, varying in size from that of a pea to that of a half-crown piece, disposed over the right foot, both dorsum and sole, and on the anterior and posterior aspects of leg and thigh. Some of them are soft and characteristically warty-looking, others are covered by crusts, on the removal of which a rough, warty, and moist surface is exposed.

The really striking feature is the amount and consistence of the scar tissue left from former course of treatment. The scars usually obtained after this mode of treatment are white, soft, silky, and non-adherent; in this case, however, they are very thick, firm, and rough, almost like the skin in elephantiasis. It is noteworthy also that even the sound skin between the masses of scar tissue is thick, brawny, and somewhat leathery to the feel. All this is probably due to the great extent of diseased surface dealt with and to interference with lymphatic circulation.

On this occasion, as on the former one, the disease is being treated by scraping, cautery, and tuberculin by hypodermic injection. The patient was an hour and a half under chloroform,

and a portion of the eruption will have to be treated at a future operation.

Some of the patches left may still be seen, showing the appearance of the eruption in a most typical form.

A few portions of the excised material were submitted to Dr. John Anderson for examination, with the result that the nodules were found to be characteristically tubercular, showing typical giant cells. The tubercular nature of the disease was further indicated by the prompt reaction of the patient to the injection of tuberculin.

Sir Thomas McCall Anderson was interested in this case. He first described the disease in *Wilson's Journal of Cutaneous Medicine*, and suggested as a name for it the one now used, with that of *scrofuloderma verrucosus* as an alternative. He congratulated Dr. Napier on the success which follows the tuberculin treatment, but regretted the relapses which so often took place on the return of the patients to their bad surroundings.

IV.—CASE OF TRANSPOSITION OF THE VISCERA.

BY DR. ALEX. NAPIER.

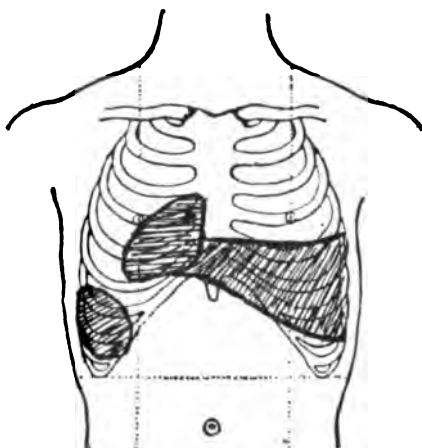
Mrs. M., æt. 26 years, was admitted to the Victoria Infirmary on 9th December, 1905, suffering from acute rheumatic fever of a fortnight's duration. This was her second attack, her previous one having occurred seven years ago.

The symptoms presented were of the usual typical kind, and it was only on making physical examination that the transposition of the viscera was discovered. The accompanying diagram shows roughly that the liver was entirely to the left and the heart and spleen to the right. The heart was found to be hypertrophied, there was a marked presystolic thrill in the apical region, and a short but rough A.S. murmur. The apex beat was visible in the fifth right interspace, its point of maximum intensity being 4 inches from mid-sternal line. Upper border of cardiac dulness in third right interspace, left border half an inch to right of middle line, right border $7\frac{1}{4}$ inches to right of middle line; transverse measurement of absolute cardiac dulness, $4\frac{1}{2}$ inches.

Hepatic dulness is on left side, upper margin at level of fifth rib, lower margin felt ascending with respiratory movements under left costal margin; measurements, in middle line, 2 inches, in left nipple line, $4\frac{1}{4}$ inches.

Splenic dulness found to right, not increased; upper and anterior margin follows course of seventh, eighth, and ninth ribs from behind, forward, and downward; it measures 3 inches in anterior axillary line.

Patient took fright, apparently at the interest shown in her case, and insisted on going home.



A noteworthy point in her history is that, according to her statement, her father died some years ago in the Royal Infirmary after operation for a tumour in the breast, and that "afterwards" his heart was found to be on the right side of his body.

V.—CASE OF MARKED PAROXYSMAL DYSPNŒA OCCURRING IN A PATIENT WITH DOUBLE AORTIC DISEASE, AND WHEREIN AFTER DEATH WERE DISCLOSED STRIKING APPEARANCES OF CHRONIC MEDIASTITIS.

BY DR. J. SOUTTAR M'KENDRICK.

Dr. M'Kendrick's paper will be published as an original article in a future issue of the *Journal*.

REVIEWS.

Manual of Anatomy, Systematic and Practical, including Embryology. By A. M. BUCHANAN, M.A., M.D., F.F.P.S.G. Vol. I: Osteology, Upper Limb, Lower Limb. With 268 Illustrations, Mostly Original and in Colours. London: Baillière, Tindall & Cox. 1906.

WE are glad to see a work from the pen of one of our best-known anatomical teachers appearing in Messrs. Baillière's "University Series." The series has attained—and deservedly—a wide popularity, and we are sure that this, the latest, volume will maintain the reputation gained by its predecessors. Unlike many of the medical books of the present day, the volume before us is written by one who has for many years been engaged in teaching the subject. Dr. A. M. Buchanan's name is a household word with many generations of Glasgow students, both as a teacher of, and examiner in, anatomy. We therefore approached this manual, expecting much; and we have not been disappointed.

The present volume embraces osteology and the anatomy of the upper and lower limbs.

The section on osteology opens with a general description of bony tissue—its composition and minute structure, and a list of terms used in describing the different parts of a bone. The individual bones are then fully described, and the description is helped very considerably by admirable drawings. In these not only the various points in the conformation of the bone are shown, but the lines of attachment of muscles are depicted in colour. The description of each bone closes with an account of the dates of ossification and of the appearance and union of the epiphyses. This account is likewise illustrated by an outline figure with the dates marked. The relation between the direction of the medullary foramina and the period of the union of the corresponding epiphyses is drawn attention to in a way that will be appreciated by students. There are, further, short accounts of the comparative anatomy of different parts of the skeleton.

The sections on the limbs, which occupy the remainder of the volume, are arranged in accordance with the author's intention of rendering the book practically useful to the

dissector. The structures are grouped in regions. Thus, the dissector of, say, the shoulder finds descriptions of muscles, nerves, and vessels, occupying adjacent pages; and he is saved the trouble of turning up different parts of the book. The description of each limb closes with full directions for its dissection. The descriptions of the joints occur in the order in which the dissector comes to these parts, a plan which is decidedly convenient.

The volume might be described as a combination of atlas, dissector's manual, and systematic description. Its size is convenient; the paper, while thin, is sufficiently opaque; and we owe much to both publisher and artist. There is a judicious use of thick type throughout the text, and the illustrations are distinctly practical.

As we have already said, the manual comes fully up to our expectations, and we feel that it needs no recommendation. The popularity which it is sure to attain will be entirely the fruit of its merit. Dr. Buchanan has laid us under a deep debt, and we congratulate him heartily on the result of his labours.

Anatomy and Physiology for Nurses. By LE ROY LEWIS, M.D. London: W. B. Saunders & Co. 1905.

THIS book, as its title indicates, is an elementary treatise on the anatomy and physiology of the human body. In such a work there is naturally little scope for originality; and its merits must lie rather in the selection of what the author considers the essentials of his subject, and the way in which he presents these to his readers. From this point of view we have nothing but praise for the book. The chief facts regarding the structure and functions of the various organs and tissues have been clearly and concisely set forth, and the text is liberally interspersed with an excellent series of illustrations.

That a nurse should know all that this book contains is a matter regarding which there might be much difference of opinion, but granted that such a knowledge is demanded, the book is certainly well adapted to supply the demand. Indeed, it might very well have a larger circulation, and be in use in colleges and schools as an elementary text-book on anatomy and physiology. We miss, however, some definite instruction as regards food and feeding. A book professing to teach physiology to nurses should, we think, have a chapter setting

forth the caloric value of the various kinds of food, as well as their digestibility. This we consider of much more importance to the nurse than a knowledge of the foetal circulation.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F.R.S., F.R.C.S.: Sixteenth Edition. Edited by T. PICKERING PICK, F.R.C.S., and by ROBERT HOWDEN, M.A., M.B., C.M. London: Longmans, Green & Co. 1905.

THE text of this new edition has been revised and in part rewritten, and many additional drawings have been introduced. Colour has been more freely used in the drawings, and another wise step is the replacement of the half-tone illustrations used in recent editions by woodcuts and line drawings.

Though this famous text-book is approaching its fiftieth year, it would appear as if age cannot wither it. It is a magnificent piece of work, and the illustrations strike us as admirable. As an instance of the "up-to-dateness" of the book, we may mention that there is a coloured figure showing the localisation of the motor functions of the cerebral cortex according to Sherrington and Grünbaum, as well as other figures showing the older views of Ferrier.

We heartily commend this great work to all classes of medical students, whether qualified or unqualified.

Nothnagel's Encyclopædia of Practical Medicine. Malaria, Influenza, and Dengue. By DR. JULIUS MANNABERG and DR. O. LEICHTENSTERN. Edited, with additions, by MAJOR RONALD ROSS, F.R.C.S., F.R.S., C.B., J. W. W. STEPHENS, M.D., D.P.H., and ALBERT S. GRÜNBAUM, M.D., F.R.C.P. Authorised Translation from the German, under the Editorial Supervision of ALFRED STENGEL, M.D. London: W. B. Saunders & Co. 1905.

ALTHOUGH malaria is now practically extinct in this country, the researches of British observers have added to our knowledge of this group of diseases so much that is of the highest importance and interest, that physicians will turn to this new volume of the *Encyclopædia* with much satisfaction. Dr. Stephens has been the actual editor, and one of his duties has been to correct the text so as to bring the original essay of

Professor Mannaberg, which was based on the miasmatic theory of malarial infection, into line with our more recently acquired knowledge of the part played by mosquitos. Thus, it is stated at the beginning of the volume that our knowledge of the history of malaria is divided into three epochs by two principal discoveries; first, the recognition of the specific action of cinchona bark, and, secondly, the demonstration of the malarial parasites. Since that statement was originally made, the discovery of the rôle played by the mosquito has inaugurated a fourth epoch. Apart from minor changes elsewhere, Dr. Stephens has contributed to the subject of etiology a section on "Malaria in its Relation to the Mosquito," which occupies one hundred and six pages of the volume. Dr. Stephens speaks confidently of the Romanowsky-Ziemann stain as the best for the malarial parasites; he claims that it is readily made, never fails, makes the detection of parasites easy, and gives characteristic staining effects. He gives detailed instructions for its preparation.

The classification of malarial diseases adopted in this work is not yet purely etiological: I, Fever produced by Golgi's common tertian and quartan parasites; II, Fever produced by crescent-forming parasites; III, Fever produced by an association of both species of parasites (mixed infections); and IV, Latent fevers. Quartan is recognised as the least frequent of all malarial fevers. Simultaneous infection with quartan and tertian parasites appears to be a rare occurrence. The writer of this notice understands that it is almost unknown in America. Two kinds of crescent-forming parasites are recognised, which correspond to the quotidian and tertian types of fever; quartan fever is not produced by crescent-forming parasites.

The whole subject of malaria is, of course, treated in great detail, and it is not easy to select any few portions of the work as better than others. We may, however, call special attention to the sections on treatment and prophylaxis, the latter including some very important remarks by the editor.

The treatise on influenza is edited by Professor Grünbaum, who says that few important additions have been made to our knowledge of the disease since Leichtenstern published his account of it. This affection naturally occupies a noteworthy place in epidemiology, and in this work more than sixty pages are devoted to the consideration of its history, epidemiology, and etiology.

The treatise on Dengue is also the work of Professor Leichtenstern. It is brief in comparison with the other parts

of the volume, occupying as it does little more than twenty pages. A few small additions have been made by the editor; for instance, with regard to the parasite described by Graham as present in the blood of patients, and its transference by the mosquito *Culex fatigans*.

This is another admirable volume of the *Encyclopædia*, and while we can highly recommend the contents of the book, we must not overlook the excellence of the work done by the translators and the printers, who contribute no inconsiderable share of the pleasure experienced by the reader.

Lectures on Clinical Psychiatry. By DR. EMIL KRAEPELIN. Authorised Translation from the Second German Edition. Revised and Edited by THOMAS JOHNSTONE, M.D. Edin., M.R.C.P.Lond. Second English Edition. London: Baillière, Tindall & Cox. 1906.

PROFESSOR KRAEPELIN occupies such an outstanding position at the present time in the realm of psychiatry that this new edition is sure to receive a hearty welcome, as well as to command the attention of those who devote themselves to psychiatry. The fact that the first English edition, a reprint of the same, and the second English edition all appeared in less than a year and a half strikes us as a remarkably good record for a work of this kind. The principal changes in the second edition consist in the addition of two new lectures and the introduction of more suitable cases in place of some of those used in the first issue. We gladly commend this important and interesting book, both to the alienist and to the general practitioner.

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology, compiled for the New Sydenham Society (a continuation of the "Atlas of Pathology") chiefly from Original Sources. Fasciculus XXIII, being XV of *The Clinical Atlas: Drug Eruptions*. Plates CXLV to CLII. London: The New Sydenham Society. 1905.

THIS fasciculus contains a valuable series of illustrations dealing with a very important subject which the medical practitioner ought never to forget or overlook. The lesions here depicted on large coloured plates, as resulting from the

use of potassium iodide, are the vesiculo-bullous form of eruption, a hæmorrhagic eruption which followed a single dose of the drug, a tuberous eruption from its continued use (iodide-sarcoma), an almost fatal rupial eruption, a vesicular eruption between the digits, a vesiculo-bullous eruption (hydroa), a fungating papillomatous eruption, and a relapsing bullous eruption. The plates are accompanied by descriptive text.

The fasciculus further gives an account of the new regulations with regard to back volumes. All members of the Society, new or old, are entitled, on prepayment of the year's subscription, to choose one volume from the surplus stock. The latter includes a long series of works, some of which are still famous, and it may be said of great permanent value. Dr. Alfred E. Russell, of 9 Wimpole Street, is now the acting general secretary of the Society, and to him letters of enquiry should in future be addressed.

A Manual of Diseases of the Eye. By CHARLES H. MAY, M.D., and CLAUD WORTH, F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906.

THIS is a truly admirable text-book, well written, lucid, concise, freely illustrated, and altogether well got up. We are, of course, prepared to find it good when we bear in mind the work Mr. Worth has already done, and when we learn that since 1900 four editions of the *Manual of Diseases of the Eye* by Dr. May, of New York, have been published. The coloured plates in this text-book are among the best we have ever seen illustrating the diseases of the eye. The work is intended for the student and general practitioner, and the aim has been to cover the whole range of ophthalmology, but, at the same time, to allot space to the consideration of the different affections only in proportion to their frequency and importance. We know of no better text-book to recommend to the student. We notice one misprint in the text on p. 98, where Fig. X, Plate 128, should read Plate X, Fig. 123.

The Urethrotomies and Kidney Capsulotomy in Diseases and Injuries of the Urinary Organs. By REGINALD HARRISON, F.R.C.S. London: John Bale, Sons & Danielsson. 1906.

THIS monograph is a presentment of the author's recent teaching at the London Medical Graduates' College and

Polyclinic. It contains his views as to the treatment of various affections of the urinary apparatus. The opening chapter deals in a general way with the subject of urethrotomy. Internal and external urethrotomy, and combined internal and external operation, are then considered, in connection with the treatment of stricture. The application of urethrotomy to cases of fistulæ, false passages, ruptured urethra, calculus vesicæ, and to cases in which prostatectomy is required, is considered in separate chapters. The author's advocacy of drainage through a wound of the deep urethra leads us to believe that he considers the plan a panacea for the many conditions which he treats of; but when we reflect that Mr. Harrison, in promulgating his views, draws on a large experience, we feel that his words must be listened to with respect.

A closing chapter on renal capsulotomy is full of interest. The volume is one which will prove valuable to a large number of readers; and we cordially recommend it to the careful attention of both general practitioners and surgeons.

First Aid to the Injured and Sick. By F. J. WARWICK, B.A., M.B., and A. G. TUNSTALL, M.D. Fourth Edition. Bristol: John Wright & Co. 1906.

THE authors have prefaced the instruction in "first aid" by a series of chapters on the anatomy and physiology of the human body; and, although the amount of information therein detailed is considerably in excess of the usual requirements of the examinations conducted by ambulance associations, the popularity of the book is perhaps the best evidence that Drs. Warwick and Tunstall have correctly estimated the desire for this knowledge. There is much in the terminology of the first part which may puzzle the average lay reader if not supplemented by lectures; but as a class text-book, the work, owing to its conciseness, abundance of detail, and sequential arrangement, will be of great use.

The section on practical work is equally good, and includes the use of triangular, roller, and special bandages. The chapters on hæmorrhage, wounds, dislocations, fractures, and transport are very full, and easily understood.

The text is clearly written, the book is well printed, and the numerous illustrations (220) are, with the exception of that on the cover, carefully selected and well placed. The

index, arranged in double column, extends to eighteen pages of small type; it is very complete and greatly enhances the value of the book for reference purposes.

Therapeutics: its Principles and Practice. By HORATIO C. WOOD, M.D., LL.D. Twelfth Edition. Philadelphia and London: J. B. Lippincott Company. 1905.

IF the demand for a text-book furnishes a good basis upon which its merits can be estimated, then it may freely be conceded that this excellent and well-known volume has successfully stood the test. It now appears as a twelfth edition, thoroughly revised, and adapted to the eighth (1905) edition of the United States Pharmacopœia.

The author, in his preface, states that the old and tried methods of therapeutics are those of empiricism (or clinical experience), and that this is not a new path, but a highway already worn with the eager but weary feet of the profession for two thousand years. Almost all the current therapeutic knowledge has been gained in this way. Dr. Wood claims that therapeutics developed in this manner does not rest upon a secure foundation; there must ever be advancement.

A careful perusal of the work shows that the changes in, and additions to, the present volume far exceed those of former editions. The plan adopted has been to make the physiological action of remedies the principal point in discussion, and this scheme has been admirably carried out.

Part I includes remedies, remedial measures, and remedial methods which are not drugs. Part II deals with drugs, over seventy new drugs being added to those formerly discussed. The chapters on expectorants and disinfectants have been completely re-written, and a new systematic classification adopted.

The author has added intrinsic value to the volume by the incorporation (in small type) of the opinions of recognised authorities on the physiological action of the drugs under review; while the insertion of a summary in clear, bolder type throughout the sections of the book will commend itself to the busy practitioner who wishes to obtain a rapid and accurate synopsis. A consideration of toxicology, so far as it is of interest to the physician, has also been added.

The sections embracing systemic remedies and extraneous remedies are worthy of all praise. We have derived great

pleasure from reading the 120 pages devoted to anæsthetics. The treatment of accidents of anæsthesia is worthy of distinct commendation. It is pointed out how certain procedures are either of no value or harmful. "Hypodermic injections of ether, although frequently employed, are so absolutely absurd that one wonders at the fatuity of surgeons. Ether in the blood acts as ether, whether it finds entrance through the lungs, through the rectum, or through the cellular tissue; and the man who would inject ether hypodermically into a patient who is dying from ether, should, to be logical, also saturate a sponge with ether and crowd it upon his unfortunate victim."

The article on chloroform gives a splendid epitome of research, but we fail to see the necessity of coining such an objectionable word as "chloroformization" (p. 104), and we cannot too strongly deprecate the transatlantic method of thus marring the English language.

The description of the best methods of practical disinfection is very thorough and up to date.

The appendix has some excellent diagrams of the motor points.

The work comprises 907 pages, and the method adopted by the author is systematic and concise, while the text is written in a clear, racy style. What we like about this text-book, all through, is the lucid, comprehensive, and graphic manner in which the *rationale* of therapeutics is laid down, and which will still further enhance the reputation of the author.

The Lymphatics. By P. POIRIER, B. CUNEO, and G. DELAMERE. Translated and Edited by CECIL H. LEAF. Westminster: Archibald Constable & Co., Limited. 1903.

THOUGH ranking merely as one section of a much more extensive treatise, this volume stands fitly by itself as a work of great value to the anatomist and clinician, and is well worth the careful translation bestowed upon it by Mr. Leaf.

In the First Part, extending to 100 pages, Delamere gives a very complete account of the histology of the lymphatic system. The descriptive part is succinct, views therein are discussed with evident authority, very interesting historical summaries are introduced in each subsection (cells, vessels, glands), and a very exhaustive bibliography of ancient and modern literature on the subject is added—this last extending to some 15 pages of closely printed type.

In the Second Part (completing the the 300 pages to which

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the work extends), the distribution of the lymphatics receives thorough treatment at the hands of Professors Poirier and Cuneo, and is a record of painstaking verification and research. It is based partly on the observations of Sappey, some of whose classical illustrations are reproduced. Sappey's results with injections of mercury were indeed wonderful, yet, in illustration, are not so likely to prove useful, in our opinion, as the results to be gained by the later methods of Gerota (chiefly Prussian blue), as applied to all parts of the body by Poirier and Cuneo, and very completely classified, described, and illustrated in this work. The illustrations of the distribution of collecting trunks and gland-chains are much more suggestive of what can ordinarily be seen by the anatomist or surgeon. There are many references to clinical and pathological observations, and altogether this volume is entitled to first place as the most complete and useful account of the lymphatics that has yet appeared.

A Practical Guide to the Administration of the "Nauheim" Treatment of Chronic Diseases of the Heart in England.
By LESLIE THORNE THORNE, M.D. London: Baillière, Tindall & Cox. 1906.

DR. THORNE in his little book gives full details for the carrying out of the Nauheim treatment in England. In this edition (the second), numerous photographs have been added, which make it easy for the practitioner to understand the various exercises which are used.

Biographic Clinics. Vol. III: Essays concerning the Influence of Visual Function, Pathologic and Psychologic, upon the Health of Patients. By GEORGE M. GOULD, M.D. London: Rebman, Limited. 1905.

IN the present volume Dr. Gould continues to speak emphatically upon the far-reaching evil consequences of refractive errors. Able editors who have denounced him as a faddist are repaid in language which sometimes tends to alienate sympathy rather than enlist it for the distinguished author. Most of the articles are reprints, and among them is one by Mr. Simeon Snell on "Eyestrain as a cause of headache and other neuroses," and another by Mr. C. Ernest Pronger on "Slight errors of refraction and their influence on the nervous

system." Dr. Gould himself writes on the ill-health of John Addington Symonds and of M. Taine; on the history and etiology of migraine; on the origin of scoliosis in school-children; on the cause of slanted handwriting; on right- and left-handedness; and on subnormal accommodation and premature presbyopia. His chapter on "The reception of medical discoveries" has no doubt been suggested by his own experience, and ought certainly to encourage him to anticipate the ultimate triumph of his own teaching. It would be well if every physician read this book.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

M E D I C I N E.

By WALTER K. HUNTER, M.D., D.Sc.

A Case of Rabies, with an Account of the Histological Appearances in the Nervous System. By Alfred Gordon (*American Medicine*, 31st March, 1908).—The patient, a man, aged 28, was bitten by a dog on the thumb of the left hand. The wound was deep, but it does not seem to have had any special treatment, and it healed at the end of a fortnight. Five weeks later the patient complained of a feeling of lassitude and general weakness, and this lasted for two weeks or more, then more definite symptoms developed. There was numbness in the left arm, pain in the back, and some difficulty in swallowing. There was shortness of breath, with spasmodic movements of the glottis. Attempts to swallow were followed by nausea, and the appearance of a glass of water caused much distress. More definite convulsive movements soon developed. They were generalised, consisting of both tonic and clonic contractions, and at times were so severe that the patient was thrown into the position of opisthotonos. This phase of the illness lasted but a few days, and ended with loss of consciousness and death.

At the *post-mortem* examination nothing abnormal was found, beyond a moderate congestion of the brain and spinal cord. But on microscopic examination the following changes were to be seen. In the cervical region of the cord there was an infiltration of round-cells into the anterior horns, chiefly round about the ganglion-cells. These last were to be seen in all stages of degeneration, and many of them were without nucleus, and vacuolated. The vessels of the anterior horns also showed a perivascular infiltration, and the same was seen in the projection of the pia mater into the anterior fissure, as well as around the central canal. The dorsal and lumbar regions of the cord were normal. In the medulla there was some round-celled exudation into a part of the hypoglossal nucleus, and some of the vessels showed perivascular exudation, but the changes were not so marked as in the cervical region of the cord. In the cortex the same pericellular infiltration was to be seen in the paracentral lobe, but limited to this area, for the frontal and occipital regions of the cortex were normal. In the posterior root ganglia the infiltration was

very intense, and there were all degrees of chromatolysis shown by the root ganglion-cells. In some of the ganglia the infiltration of round-cells was so intense that all signs of nerve-cells had disappeared. In addition to the infiltrating round-cells, there were also a considerable number of cells of a different kind scattered throughout the sections of the spinal ganglia. These the author regards as mast-cells. There was also a third type of cell to be seen in certain parts of the section, evidently derived from the proliferating endothelial cells lining the ganglion-cell capsules. These were sometimes found in great numbers, completely filling the space occupied by the degenerated ganglion-cells.

The author draws special attention to the presence of mast-cells, limited to the root ganglia exudate; and he quotes Franca, showing that the same cell has been found in experimental rabies and in a number of dogs dying of that disease. It is suggested that these mast-cells, found in an infiltrated root ganglia, are possibly pathognomonic of rabies.

A Case of Splenomegalic Biliary Cirrhosis in a Boy Six Years Old. By E. C. Williams (*Bristol Med.-Chir. Jour.*, March, 1906).—The child had always been delicate, and when 3½ years old had jaundice, and is said to have been yellow ever since. The bowels were always regular, and the appetite good. The urine was never noted to be dark in colour, but the motions were inclined to be white. There was no swelling of the legs, but some shortness of breath. The brothers and sisters were said to be healthy; the mother died of consumption. On admission to hospital the child measured 3 feet 4 inches, and weighed 36½ lb. He was pale, the skin having a lemon-yellow tint, and the conjunctivæ being slightly yellow. There were enlarged veins over the chest and abdomen. There was no increase of cardiac area, but a hæmic murmur was heard at the base. The lungs were healthy. The abdomen was greatly enlarged, the circumference measuring 28 inches. Both liver and spleen were palpable, the former reaching to the level of the umbilicus, and the latter to about an inch and a half from the iliac crest. There was no evidence of ascites. The urine contained a trace of bile, but no albumen and no sugar. There was nothing distinctive about the blood. The red corpuscles numbered 5,400,000; the white, 9,545. Of the latter, 38·1 per cent were polymorphonuclears, 46 per cent lymphocytes, 11·6 per cent eosinophiles, and 3·3 per cent mononuclears. The hæmoglobin was 62 per cent. The lymphatic glands were not enlarged. While in hospital there was a rise of temperature to 101°, and coincident with this an increase of jaundice. With the subsequent fall of temperature the jaundice gradually disappeared, till only a slight yellow tinge was to be seen on the conjunctiva, and at the same time the motions became yellow. Since the disappearance of the jaundice, the girth of the abdomen has measured 2½ inches less. It is not known whether the liver or the spleen was first enlarged. There is a doubtful history of paternal syphilis in this case, but no appearance of the usual signs of congenital syphilis in the patient.

A Case of Leukæmia Simulating Scurvy Rickets. By E. Weil (*Lyon Médical*, 8th April, 1906).—The patient was a child, 3 years old. At 13 months it was admitted to hospital with rickets. At 2½ years of age it was again in hospital, this time with scarlet fever. The third time it was brought to hospital was on account of the spongy condition of its gums. The gums had been in a similar condition for a fortnight; but for a month past there had been emaciation and progressive pallor. The gums were greatly swollen, bleeding, and extremely painful. This swelling, too, was not confined to the gums, but involved the mucous membrane over the anterior part of the hard palate. The breath was most offensive, but there was little tendency to salivation. The bones of the trunk and limbs bore the deformities of the former rickets, but there was no tenderness on manipulating the limbs. The temperature was 102°, and there was albumen in the urine. Examination of the abdomen showed enlargement both of liver and spleen. The lower

border of the liver extended to four fingerbreadths below the right costal margin, and the spleen could be palpated three fingerbreadths below the left costal margin. The paleness of the child was extreme. Examination of the blood showed the red corpuscles to register 2,000,000 per c.mm., and the white corpuscles 412,500. Of these last 78 per cent were "mononuclears," 12 per cent lymphocytes, and 10 per cent polymorphonuclears. With Ehrlich's triacid stain no granules were to be seen in the "mononuclear" cells, and they were therefore not myelocytes, but doubtless large lymphocytes. The diet of the child seemed to contain a sufficiency of the anti-scorbutic element. The author regards the case as one of leukemia of the pseudo-scorbutic type, and quotes several other cases with the same grouping of symptoms.

The Blood in Lead Poisoning. By W. B. Cadwalader (*University of Penn. Med. Bul.*, April-May, 1906).—The blood was examined in 37 cases, all of which presented well-marked symptoms of lead poisoning, as well as a history of having worked with lead for periods of from a few weeks to many months. The red corpuscles and hæmoglobin were reduced to about one-fourth of the normal in most of the cases, giving an average of 3,850,000 red corpuscles and 65 per cent hæmoglobin. Poikilocytosis was not a marked feature, and macrocytes and microcytes were but occasionally met with. In all but four cases normoblasts were to be seen, and in two of the cases megaloblasts. In every case there was an increase in the number of red cells with basophile granules. The white corpuscles showed no morphological changes. They averaged 7,568 in number, the greatest number being 12,550, and the smallest 4,700. In most cases there was an increase of the large mononuclear cells, the average being 14 per cent; and this was accompanied by a slight fall in the percentage of the polymorphonuclear cells or small lymphocytes. No myelocytes were to be seen in any of the cases.

SURGERY.

By ARCH. YOUNG, M.B., C.M., B.Sc.

A New Method of Operating in Dupuytren's Contraction of the Palmar Fascia. By W. W. Keen (*American Journal Med. Sciences*, 1906, p. 23).—In the method described by the author a square flap is raised from the palm, including in it everything superficial to the tendon sheaths. The contracted and altered palmar fascia is then easily dissected away from the under surface in the most complete and thorough manner.

Keen has carried out the plan in the case of a woman, aged 64 years. The right hand was involved. From the left hand the contracted fascia had been removed two and a half years before by the ordinary method of linear dissection. Local anæsthesia was employed, a solution of β -eucaine and adrenalin being injected into the skin in front of the wrist, and a few drops into the median and ulnar nerves individually. This required to be supplemented by further injection of a few drops of a 4 per cent solution of cocaine into these nerves.

The flap was outlined as follows:—Beginning close to the web between the index and middle fingers it was carried upwards towards the wrist, then at the level of the ball of the thumb it passed transversely to a corresponding point in line with the space between the ring and little fingers, when it was carried distally parallel with the first side as far as the ball of the little finger. The result was satisfactory both as regards primary healing and functional result. The advantages claimed are (1) ready access to affected fascia; (2) avoidance of all risk of sloughing by raising a substantial flap.

The Cure of Femoral Hernia. By W. B. de Garmo (*Annals of Surgery*, vol. xlii, p. 209).—The sac is isolated through an incision 2 to 3 inches long, running parallel with, and to the inside of, the femoral vessels, from the saphenous opening up to Poupart's ligament. After incision of the coverings the sac is well freed right up to its neck, drawn down, and, after the freedom of the neck from bowel or omentum has been well established, is ligated with catgut as high up as possible, this ligature being secured from slipping by an additional transfixion stitch. The portion distal to the ligature is then cut away. After careful scrutiny for bleeding vessels the stump is pushed up by the finger till the femoral opening is quite clear. The femoral opening is obliterated by three or four stout sutures of kangaroo tendon passed through Poupart's ligament in front and the pubic periosteum beneath. These sutures are inserted at intervals of a quarter of an inch, the first being close to the femoral vein, which is specially guarded against injury or undue traction by the finger pressed firmly into the femoral opening. None of these sutures is tied till all are in position. Fascial and skin sutures, an external collodion dressing, and support by spica bandage complete the operation.

Out of 110 cases treated in this way, only 1 recurrence is known to the author, and most of the patients were subsequently traced in order to establish the permanence, or otherwise, of the cure. In 28 of the cases strangulation was present at the time of the operation. Yet of the whole 110 only 1 died, viz., an old woman, aged 70, who was practically moribund when seen, strangulation having existed for three days. The age of the patients varied from 8 to 81 years.

The Treatment of Diffuse and General Peritonitis, with Special Reference to the Murphy Method. By John H. Gibbon, M.D., Philadelphia (*New York Med. Journal*, 7th April, 1906).—The author has been led to adopt, in preference to any other, the method advocated by Murphy. The latter reported in the *Journal of the American Med. Association* (11th April, 1903), a case of typhoid perforation and five other consecutive cases of general suppurative peritonitis in which all the patients recovered. Up to October, 1905, he had had in all 29 cases of diffuse peritonitis in which the method put forward by him in 1903 was followed with but a single death (from pneumonia on the sixth day).

Gibbon in this paper discusses the three main plans followed by surgeons in the treatment of generalised peritonitis. They are (1) the plan enjoining abstention from operative interference till the inflammatory process and exudate have become localised; Ochsner reports unusual success in following this method; (2) the plan adopted by many of the advocates of immediate surgical intervention, consisting in freely opening the peritoneal cavity, breaking up all adhesions, opening up all sockets, and irrigating thoroughly; (3) the plan of which Murphy has been the foremost advocate, which consists in immediate opening of the abdomen, radical treatment of the cause of the trouble, but avoidance of any disturbance of abdominal viscera; all that is necessary, or desired, is adequate drainage.

The Murphy treatment "consists in making a small opening in the abdomen, closing the perforation or removing the appendix, as the case may be, the introduction of a large drainage-tube into the pelvis, placing the patient in a sitting posture of from 35 to 45 degrees, and the administration of a quart of salt solution every two hours per rectum."

Murphy believes that "it is a fatal mistake to mop, wash, or handle the intestines or peritoneum." "Then, too, the simple opening of the abdomen relieves the pressure under which the pus rests, and we know that all that is necessary to stop absorption from a pus accumulation in any part of the body is to open the cavity and relieve the pressure. It is injurious and even dangerous to 'milk' or handle an acute abscess; it is doubly so to handle an infected peritoneum, but the pressure should be relieved by opening it, allowing it to drain, and exposing the anaerobic flora to the air."

Large quantities of salt solution may be administered by the rectum—as much as eighteen pints in 24 hours—all being retained. It is necessary, of course, that the reservoir should be very slightly elevated above the bed, and that the fluid should be allowed to enter the bowel very slowly. Drainage and renal elimination are greatly increased by the large amount of saline so administered.

Between July, 1905, and February, 1906, Gibbon has employed Murphy's plan more or less rigidly in eight cases of diffuse peritonitis. From this group are excluded ten cases of appendix perforation where the peritonitis was localised. Also, he states, that during that period he has not refused to operate in any case because of its advanced condition. The eight cases were all of a most grave type. Five recoveries took place. Of the three deaths it should be stated that one occurred in a case of typhoid perforation in which permission for operation was refused until thirty hours after perforation, death taking place next day; the other two occurred in cases of general peritonitis due to perforation of the appendix. It seems, however, as if in neither of them could recovery have been by any possibility achieved. One died from septic thrombosis and pulmonary embolism six days after operation; the operation in the other was only eight minutes in duration, but the patient lived only twelve hours. In the former, thrombosed veins in the meso-appendix and vicinity were observed at the operation, and the occurrence of further mischief of the same sort was anticipated. Both cases were profoundly septic.

Gibbon pleads very strongly for a more general use of the Murphy plan of procedure.

Vaginal Drainage in Children and Young Adults. By Arnold W. W. Lea, M.D., F.R.C.S. Eng., Manchester (*The Medical Chronicle*, May, 1906).—Vaginal drainage in purulent or infective lesions of the peritoneal cavity has been employed to a considerable extent for some years, and has given good results in adult women. Until recently, however, it has been regarded as inadmissible in children. The author remarks on the fact that Kelly, in his recent work on the vermiform appendix, indicates his adherence to the latter view by remarking, of an abscess bulging into the pouch of Douglas, "Vaginal drainage impossible owing to age of patient." Lea points out how inefficient drainage from above is apt to be, and that residual abscesses filling out Douglas's pouch a few weeks after the primary operation are not uncommon. Rectal drainage of a pelvic abscess may be employed in the male, but he regards the vaginal route as more favourable in girls.

The author has treated twelve cases in this way, in children varying from 5 to 14 years of age. In half of the cases the drainage was employed for acute appendicitis; in the other half for tuberculous peritonitis. All of the former recovered and remained well; four of the latter did well and were in good health many months later. In two the disease progressed, and ended in death a month later.

The pouch of Douglas may be the seat of abscess in appendicitis as a primary lesion, where the appendix actually hangs into the pelvis. Also, in a diffuse peritonitis following perforation, the pelvis is sure to be filled with purulent fluid, on account of its being the most dependent part of the peritoneal sac. If overlooked, the latter contingency is hardly compatible with recovery. Probably in 30 per cent of cases of appendicitis in young girls the peritonitis extends into the pelvis, and an abscess forms in Douglas's pouch.

The author recommends vaginal drainage, therefore, both in cases of acute diffuse peritonitis and in localised pelvic abscess.

The technique is said to be simple. The vagina of even young children can be dilated without damage by the finger; a small retractor is then introduced, the canal is disinfected, and the cervix seized with fine volsellum forceps. The mucous membrane of the posterior *cul-de-sac* is then incised carefully, and forceps passed carefully into the abdominal cavity. The tube may be of rubber or glass, and should have a piece of silk attached for security and withdrawal. It seems to cause no discomfort.

Vaginal drainage may readily be combined with abdominal drainage from above.

The author believes gauze drainage unsuitable in young children.

In tuberculous peritonitis he believes that the good results of simple incision and evacuation of the fluid may be improved upon by keeping the peritoneal cavity free from fluid for a few days at least. Vaginal drainage serves this end. He has found that for the first few days a large quantity of fluid escapes. The flow then ceases, and the tube may forthwith be withdrawn.

Treatment of Acute Gonorrhœa.—Two papers on this subject may be referred to as representing fairly well the trend of opinion at the present time. They are by N. E. Aronstam, M.D., Michigan ("The Rational Treatment of Urethritis," in *The Medical Age*, 10th April, 1906), and Arthur Ball, M.D., Dublin ("The Modern Treatment of Gonorrhœa," in the *Medical Press and Circular*, 9th May, 1906).

Both accept the purely local disease view of the affection, and recommend its treatment by local means, "in such a manner that the inflamed surface is cleansed and soothed without being irritated, thus allowing the patient's normal powers of resistance to the organism to act to greatest advantage" (Ball). They recommend strongly the Janet (France) or Valentine (New York) irrigation method.

The results of its use are "(1) the removal from the urethra of muco-pus, epithelial debris, &c.; (2) astringent constriction of the peripheral vessels and the shutting off of a nutritive supply to the infecting agent; (3) indirect disinfection of the urethra achieved thereby; (4) curtailment of the duration of the affection without endangering the integrity of the urethra" (Aronstam).

Ball employs what is practically Valentine's method, the anterior urethra being irrigated with permanganate of potash (1 gr. to the quart). The reservoir should be 2 feet above the urethra, the patient sitting on edge of a chair, or standing. Glans, prepuce, and urethral orifice are first cleansed, and the nozzle is introduced into the meatus. The fluid should run gently at first, with full force later, the return flow taking place by the side of the nozzle. The whole quart should be used. The nozzle should have a glass or rubber shield to protect the operator. The irrigation should not occasion much discomfort or actual pain. It should be carried out once or twice daily, and the solution may be increased in strength until 4 grs. of permanganate to the quart are employed by the end of the second week.

Aronstam employs normal saline solution. Not more than 3 lb. pressure should be allowed, the reservoir being raised no higher than 6 feet. The urethra is constricted by a soft rubber catheter loosely encircling the root of the penis, or by the fingers of the operator's left hand gently pressing the latter, while the right hand manipulates the irrigator valve. In this way infection of the posterior urethra is prevented, and, as the infective agent is during the acute stage generally confined to the first 2 or 3 inches of the urethra, only this portion requires irrigation. A steady stream of saline is allowed to flow gently over the mucosa for four or five minutes. Thereafter the meatus is dried, and 20 minims of a 1 in 1,000 solution of adrenalin is instilled into the anterior urethra (still protected by posterior constriction) through an ordinary bulb eye-dropper. By compressing the meatus it is retained for at least five minutes, and is then permitted to escape. The constriction of the superficial capillaries by this expedient Aronstam believes to result in removal of a prolific source of pabulum necessary for multiplication and maintenance of the gonococci, "which for want of it readily succumb."

Where the posterior urethra is involved, the entire urethra must be irrigated. For this purpose the recumbent position is best (Ball). The anterior urethra should be first of all irrigated, then, with the reservoir raised 6 to 9 feet, and the meatus held tightly about the nozzle, the pressure of the flow of fluid overcomes the compressor urethræ muscle and the bladder sphincter, and the fluid enters and fills the bladder. If muscular relaxation be delayed, the patient should be directed to breathe deeply, or make efforts at urination,

when the desired relaxation occurs. The nozzle is withdrawn when the bladder is filled, and the patient micturates, this procedure being repeated several times at each *séance* (Ball).

Both authors are against the use of strong irrigation solutions, and condemn the so-called "abortive" method of treatment.

Gonorrhœa: The Syringe versus the Irrigator. By F. Valentine (*American Journal of Urology*, July, 1905).—The following summary of the views of Valentine is quoted from *The Medical Age*, 25th November, 1905, as having some explanatory importance with reference to the foregoing abstract:—

"Even the mildest gonorrhœa is dangerous to man, woman, children, and the community."

"No cure is real unless all the scientific tests possible show permanent absence of gonococci."

"No honest advocates of the irrigation treatment ever made the preposterous and unsentimental assertions quoted as coming from them."

"Irrigation treatment—like any other treatment—is dangerous unless employed with caution, tact, and gentleness."

"The immense number of irrigation cures are due to the operator's gentleness and judgment."

"Unbiased, exhaustive trials of each new drug—conducted on a large scale—invariably cause return to the irrigation treatment."

"The technique of irrigation is easily acquired, but success demands scrupulous attention to detail. The choice of drugs for irrigation solutions is not limited to potassium permanganate, nitrate of silver, or perchloride of mercury; the choice is governed by the needs of each case."

"The selection of the drugs, and the strength of the solutions, should be guided by (1) condition of discharge; (2) microscopic and cultural results; (3) character of urine; (4) any involvement of major and minor adnexa."

"Chronic gonorrhœa is due always to infiltration of the urethral mucosa, involvement of the urethral crypts, glands, and follicles, or to invasion of Cowper's glands, prostate, or seminal vesicles, or all of these; therefore these extensions must be treated in conjunction with the gonorrhœa."

"A patient with an acute anterior gonorrhœa, coming under treatment before the adnexa are involved, should escape complications if irrigations are carefully, skilfully, gently, and judiciously employed."

"No other form of treatment so relieves pain and reduces discharge as do properly administered irrigations."

Hydrogen Peroxide in the Diagnosis and Treatment of Gonorrhœa. By Alexander (*Centralblatt für d. Harn. und Sexual. Organ.*, April, 1905).—The author uses hydrogen peroxide for the demonstration of gonococci in cases of urethritis where they are in other ways impossible of discovery. In the later stages of gonorrhœa, when few cocci remain, and even these are lodged deeply in the mucous membrane, its crypts or recesses, the usual methods of examination may completely fail.

He injects a solution of hydrogen peroxide, in strength varying with the urethral capacity, amount of discharge, and the duration of the disease. A commonly-employed strength is 1 per cent. Preferably he uses a solution made up of 29 parts of water and 1 of Merck's "Perhydrol" (which contains 30 per cent of H_2O_2), thus getting the necessary 1 per cent solution.

This is injected into the urethra, and allowed to remain for a minute if possible (this depends on the extent of gas formation). The foam which first escapes is rejected, only the last portion and any shreds expelled being retained. Films are made from this and examined in the ordinary way. He believes that the dislodgment of the gonococci from their "hiding-places" by this plan is quite consistent with absence, or at least the minimum, of injury or irritation of the mucous membrane. This dislodgment should also favour actual cure.

Treatment of Plantar Hyperidrosis.—In the *Bulletin Général de Thérapeutique* (30th March, 1906) a Russian military physician recommends the following :—"After washing the feet with soap and water, an application is made upon the plantar surface, by means of a shaving-brush, of a layer of formaldehyde solution (20 per cent), and the toes and dorsal surface are daubed with a weaker solution (10 per cent). This is repeated morning and evening for three or four days."

The above solutions probably refer to the official solution, diluted with 4 or 9 parts of water.—(*New York Medical Journal*, 28th April, 1906).

The Injection Treatment of Tuberculous Disease of the Knee-joint. By Villernin (*La Tribune Médicale*, 10th February, 1906).—The following solution is recommended for injection into the synovial sac :—

R.—Iodoform,	10 grammes.
Ether,	40 "
Olive oil,	100 "
Creosote,	2 "

This solution is, if properly made, permanent and quite clear, containing 1 gramme of iodoform in every 15 c.c. The quantity injected may vary between 15 and 45 c.c.

The manner of injection is as usual. The joint is immobilised afterwards, and there should be no special discomfort or annoying reaction following the injection.

After the expiry of a week (by which time the oily vehicle should be almost entirely absorbed), a few drops of a 10 per cent solution of zinc chloride should be introduced peri-synovially at a number of places—in the synovial fringes, deep in the tissues around the articulation, and especially close to the femoral reflection of the synovial membrane. Care must be taken that the chloride of zinc solution does not actually find entrance into the synovial cavity, where it might excite violent reaction without any beneficial effect. After a few days, when local reaction has subsided, the joint should be immobilised with plaster of Paris and kept at rest for some months.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Facial Hemispasm Cured by a Deep Injection of Alcohol.—This is a somewhat interesting communication made to the February number of the *Archiv. d'Ophthalmologie* by Abadie and Dupuy-Dutemps, and from their description the method seems to us to merit a trial. The patient afflicted with the disease was 56 years of age, and had suffered since the age of 16 from intense hemispasm affecting the left side of the face. So excessive was the condition that it sometimes awoke her at night. It became much exaggerated when she spoke or applied herself to any work requiring accurate sight. Various remedies had been tried without any success, and at last the patient had given up all efforts at treatment. In the month of June last she sustained an injury to the right eye, as a consequence of which the visual acuteness of this organ was reduced to $\frac{1}{20}$ of Snellen. This rendered her vision very defective, for the left eye was almost constantly kept closed by the orbicular spasm. The convulsive attacks involved all the muscles on the left side of the face and occurred every two or three minutes. Between the attacks there remained a certain contraction of the left side. Two attempts at treatment by injections of alcohol in the face, in the neighbourhood of the temporo-facial and cervico-facial branches of the nerve gave only temporary relief.

The communication made by Schloesser in April, 1904, induced the authors to try in this case the effect of an injection of alcohol in the trunk of the facial nerve itself at its exit from the foramen. For this purpose they introduced a cubic centimeter of rectified spirit, in which was dissolved a little stovaine, the needle of the syringe being deeply introduced at the apex of the triangle which is formed by the anterior aspect of the mastoid and the cartilage of the ear. As soon as the injection was made the patient complained of very acute pain which was of short duration. A few seconds afterwards facial paralysis set in, which in a few minutes became complete. The eyelids became widely opened and immovable, and the markings on the forehead at the left side of the face became completely effaced, the cheek placid, and the speech embarrassed. For some days afterwards the paralysis remained quite pronounced. The spasm no longer appeared, except for a few rare and partial contractions affecting a few muscles. In about twenty days the facial paralysis was almost entirely gone. A few spasmodic contractions still appeared at considerable intervals, but not at all in an annoying manner. Ultimately the patient was practically well, and able to resume the duties of life, and to do her work as a seamstress.—F. F.

Enucleation under Local Anæsthesia.—Certain decisions in the law of France concerning workmen's compensation throw the blame of a death from an anæsthetic on to the surgeon's shoulders, unless the surgeon has definitely warned the patient before commencing the operation that an anæsthetic may have a fatal result. It would seem that in France, should such an untoward event take place without such definite warning, the surgeon is liable for the compensation due for a fatal injury. Under these circumstances, Terrier has investigated the subject of enucleation, so as to render it possible in most cases to perform this simple operation by local anæsthesia. This is by no means the first attempt at such a thing; in fact, for a considerable time a large number of operators in Germany have employed infiltration methods. In Terrier's method a few drops of a 4 per cent solution of cocaine or stovaine are introduced into the conjunctival sac. As soon as superficial anæsthesia is secured he makes four injections, one at each of the extremities of the two principal meridians. The solution which he uses for this purpose is approximately the following:—Cocaine hydrochlorate, $1\frac{1}{2}$ grain; water, $\frac{1}{2}$ oz. Thirty-five minims of this solution should be enough to secure practical immunity from pain.

In each situation the needle is inserted down to the level of the insertion of the tendon of the muscles. This infiltration of the conjunctiva is combined with a hypodermic injection of morphia under the skin. There is no doubt that many operations could be rendered painless by infiltration, and one of these certainly is the operation of enucleation. At the same time, such a process seems to us only justifiable in certain cases. We would never think of attempting it in young children, nor in nervous or weak people, nor where the eyeball was very much inflamed; but there is no doubt that in certain cases it may be useful, and it is well to know of a plan by which it may be effected.—F. F.

Extirpation of the Lacrymal Sac.—Extirpation of the lacrymal sac is now becoming quite a recognised operation, and, indeed, from personal experience, it seems to the writer the most suitable line of treatment in chronic cases where the usual remedies have failed. An interesting discussion on this operation took place in the Ophthalmological Society of Paris on 9th January, 1906. This discussion was opened by Jocqs. Before operating, he plugs the sac with soft cotton and thus renders its removal extremely easy. The writer of these reports some considerable time ago attempted the dilation of sacs in such cases by means of paraffin; an attempt which was only very partially successful, for the paraffin often escaped into the nasal duct and thus was of no assistance. Jocqs terminates the operation by catheterising the canal with a No. 2 or 3 probe, and in this way endeavours to create a natural canal

for drainage. The author rarely employs a general anæsthetic, but manages to do the operation with a solution containing 1 per cent of cocaine and 2 per cent of stovaine. In the discussion which followed, Terson rather favoured the destruction of the sac by means of the actual cautery. In his experience it is a more certain method of stopping the suppurating process than extirpation, for hitherto it has been somewhat difficult to ensure that the whole sac is removed, and that no little fragment of it is left behind. Undoubtedly the simple proceeding indicated by Jocqs should render the operation much easier of performance, and therefore give a greater certainty of result.—F. F.

A Case of Metastatic Panophthalmitis after Cataract Extraction, as the Result of Croupous Pneumonia due to Friedländer's Pneumobacillus. By Wopner (*Klinische Monatsblätter für Augenheilkunde*, April-May, 1906).—The patient was a day labourer, of 68 years of age, who had extensive arterio-sclerosis, and was poorly nourished. A cataract operation had been performed four years earlier on the right eye, and the wound had healed without any complications, giving a visual acuteness still of $\frac{1}{2}$ at the time of the second operation. This was performed three days after admission to hospital, without apparently any preliminary bacteriological investigation of the conjunctival sac. The wound was closed on the day following the operation, the anterior chamber having again been formed, and everything proceeded normally until the evening of the fourth day after operation, when the patient had a rigor and the temperature rose to 102.6° F. The respirations were 40 to the minute, the pulse 110, and the temperature 104.2° F. upon the fifth day, with the signs of commencing consolidation of the superior lobe of the right lung, and of the inferior lobe on the left side. At the same time the cornea of the operated on (left) eye became steamy and lost its lustre, but without infiltration of the lips of the wound. The aqueous was cloudy, the iris discoloured—having greyish-yellow exudation spots on its anterior surface—and the vitreous gave a greyish reflex. Two days later the anterior chamber was filled with pus, but the corneal wound was still free from infiltration. The hypopyon was removed by puncturing the cornea. The pus, however, reaccumulated and filled the anterior chamber in another two days. The patient died the next morning, i.e., ten days after the operation. At the *post-mortem* there was found croupous pneumonia, with grey hepatisation of the two lobes mentioned, and opaque swelling and fatty degeneration of the kidneys. Pure cultures of virulent Friedländer's pneumobacillus were obtained from the lung and also from the pus in the vitreous chamber of the left eye. The eyeball was embedded partly in paraffin and partly in celloidin. Macroscopically, the pus was seen to fill the anterior chamber, pass behind the iris and cover the ciliary body, and to be connected by delicate strands with a large purulent collection in the vitreous just in front of the optic nerve entrance. Microscopically, the exudate consisted of a dense fibrinous network containing large numbers of pus cells, mostly mononuclear leucocytes. In the centre of the cornea there was a fissure filled with granular debris and a few pus cells. Descemet's membrane had been destroyed in the lower part, possibly by the hypopyon, and the posterior corneal lamellæ were infiltrated by the exudation. The wound, which had been opened to let out the hypopyon, was closed by a plug of exudation, the lips being slightly infiltrated, as had been observed clinically after the puncture. The cellular infiltration and inflammatory changes were most marked around the remains of the lens capsule and in the retina and neighbouring vitreous and chorioid, just beside the optic nerve entrance. Cellular necrosis and changes in the arterial and venous walls were found. The bacilli occurred in the exudation, and especially around the degenerated walls of the arteries, but not in their lumina.

The author argues that the very rare combination shown in this case points to the pneumonia as the origin of the metastasis, while the late appearance (fifth day) of the ocular symptoms, and the occurrence of the oldest and severest pathological changes at the optic papilla and the neighbouring parts of the retina, are against the possibility of an ectogenous infection of the eye. To

these he adds the absence of any appearance, clinically, of reaction at the corneal operative wound until the puncture, the absence of any inflammatory affection of the conjunctiva prior to operation, and the great rarity of the pneumobacillus in the conjunctival sac. The latter two arguments are of no value, because the pneumobacillus may be present on the conjunctiva without causing conjunctivitis, and such might have occurred in this case if the bacilli had been present in the air-passages. In a negative manner, the few bacilli found in the anterior chamber is of importance. Septicæmia may occur after pneumonia due to Friedländer's bacillus, and in this case the operation, by removing the lens, but leaving fragments of it to be absorbed, may have so disturbed circulatory relations as to have led to the deposition of bacilli within the eye. It has been experimentally shown that ocular wounds are only liable to metastatic suppuration within the first few hours after operation. The eye also shares, like other tissues, in the fact that organisms circulating are prone to settle at injured spots or in extravasated blood. Experimental metastases to the eye are most frequent in the posterior portions of the globe. The clinical history, however, indicates that the intra-ocular inflammation commenced almost at the same time in both the eye and the lungs, and that the symptoms certainly appeared in the anterior segment of the eyeball as soon as in the posterior. The probabilities are in favour of metastatic origin of the panophthalmitis, but the case shows how valuable a preliminary bacteriological examination is to all ophthalmic surgeons.—W. B. I. P.

On the Eye Affections of Leukæmia and Pseudoleukæmia.

By W. Stock (*Klinische Monatsblätter für Augenheilkunde*, April-May, 1906).—In this paper the author adopts the classification of leukæmia given by Pinkus, Lazarus, and Sternberg. Liebreich was the first to describe leukæmic retinitis. The veins are tortuous and dilated. The varicosity is believed to be due to the leucocytosis, since the very large numbers of leucocytes impede the circulation by adhering to the vessel walls. The slowing may be so great that the actual flow of blood can be detected. White and red corpuscles may be found in the retina, and it has been suggested that a local proliferation of lymphoid tissue may occur. This clinical picture may occur with both medullary and lymphatic leukæmia, and a case of the former variety is described. The retinal changes cannot, therefore, give a diagnosis between them.

The author then discusses the origin of the orange-yellow colour of the fundus, which has been described in a large number of cases. Schmidt-Rimpler and Meller believe that it is due to a diminished hæmoglobin value of the blood, but against such a view is the fact that the fundus may have its normal colour where the hæmoglobin has been as low as 30 per cent, while the orange-yellow appearance was marked in Oeller's case with 40 per cent. He relates the case of a boy of 12 who died suddenly after multiple hæmorrhages. There was only time to obtain a cover-glass examination of the blood. This showed the picture of acute medullary leukæmia, with 578,000 white corpuscles per c.mm., mostly large mononuclear leucocytes, or what Sternberg describes as leukosarcoma. The chorioid was nearly three times the normal thickness, and consisted almost entirely of large mononuclear leucocytes. This would indicate that the colour of the fundus was probably grey or greyish-red. Kerschbaumer found the same condition in a case in which the eyes had been examined ophthalmoscopically sixteen days prior to death, when a normal colour was observed. This negative result does not exclude the possibility of the development of the chorioid condition within the last fortnight of life. Meller also saw the same changes in a case in which the normal colour of the fundus was obtained a day or two prior to death. Stock alludes in this connection, and in support of his contention, to the differences between the colour of such tumours in the bladder, and to cases in which the fundus of the eye shows unequal colouring. In the boy's case (which Schulze has published in *Ziegler's Beiträge*, 1906), the liver, spleen, and lymphatic glands were all enlarged, due entirely to large mononuclear leucocytes, while the follicles were unchanged. The author is therefore not inclined to accept the view that

"general irritation" has caused the chorioidal change, more especially since lymphoid tissue does not normally occur there.

The author found, in a case of acute lymphoid leukaemia, larger and smaller retinal hæmorrhages. In both eyes a very large pre-retinal hæmorrhage was also seen, around which the retina had a whitish-yellow colour. There were, in addition, a few small white spots. Good coloured plates are given of each fundus. Pathologically, the large hæmorrhages were found to have separated, probably *post-mortem*, into white and red corpuscle groups, and there was found also a general dissemination of cocci in the blood-vessels—a change beginning two or three days prior to death.

Full descriptions are given of two cases of lymphoma of the orbit. In the one there was binocular exophthalmos, due to general and circumscribed infiltrations in the orbit and the lacrymal glands. The spleen and most of the lymphatic glands were enlarged, and at other parts there were small tumours. At first the blood was normal, and the case was diagnosed as pseudoleukaemia; but a month prior to death there was an absolute and relative increase in the lymphocytes, and accordingly the final diagnosis was chronic lymphatic leukaemia.

In the other case there was slight exophthalmos on one side. The lymphatic glands of the neck and face were enlarged, but the others, the blood, and the spleen, &c., were normal. *Post-mortem*, there was found a lymphoid tumour of the sphenoid bone, which had perforated the dura mater and the brain substance, also the periosteum of the orbit, which was invaded especially along the vessel walls. This case might have been thought, clinically, to have been a pseudo-leukaemia.

From these and similar cases, the author deduces that symmetrical nodes in the anterior segment of both orbits and the lacrymal glands are characteristic of leukaemia and pseudoleukaemia, while one-sided exophthalmos, with retrobulbar tumour, indicates lymphosarcoma.—W. B. I. P.

Books, Pamphlets, &c., Received.

- Catarrhal Fevers, commonly called Colds: their Causes, Consequences, Control, and Cure, by R. Prosser White, M.D.Ed., M.R.C.S.Eng. London: H. K. Lewis. 1906. (4s.)
- A Plea for the more Energetic Treatment of the Insane, by Charles Williams, L.R.C.P., L.R.C.S. London: Henry J. Glaisher. 1905. (1s. 6d. net.)
- The Combined Treatment in Diseases of the Eye, by G. Herbert Burnham, M.D.Tor., F.R.C.S.Edin., M.R.C.S.Eng. London: H. K. Lewis. (3s.)
- Notes on Local Anaesthesia in General Surgery, by J. W. Struthers, M.B., F.R.C.S.Edin. Edinburgh: William Green & Sons. 1906.
- The Urethrotomies and Kidney Capsulotomy in Diseases and Injuries of the Urinary Organs, by Reginald Harrison, F.R.C.S. London: John Bale, Sons & Danielsson, Limited. 1906. (2s. 6d. net.)
- Principia Therapeutica, by Harrington Sainsbury, M.D., F.R.C.P. London: Methuen & Co. (7s. 6d. net.)

- Manual of Anatomy, Systematic and Practical, including Embryology,** by A. M. Buchanan, M.A., M.D., C.M., F.F.P.S.G. Vol. I: Osteology, Upper Limb, Lower Limb. With 268 Illustrations, mostly Original and in Colours. (University Series.) London: Baillière, Tindall & Cox. 1906. (12s. 6d. net.)
- Student's Handbook of Operative Surgery,** by William Ireland de C. Wheeler, (Mod.) B.A., M.D.(Dub. Univ.), F.R.C.S. London: Baillière, Tindall & Cox. 1906. (5s. net.)
- The Ship-Surgeon's Handbook,** by A. Vavasour Elder, M.R.C.S., L.R.C.P. London: Baillière, Tindall & Cox. 1906. (3s. 6d. net.)
- Phlebitis and Thrombosis, the Hunterian Lectures delivered before the Royal College of Surgeons of England in March, 1906,** by Warrington Haward, F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906. (5s. net.)
- Lectures on Midwifery for Midwives,** by A. B. Calder, M.B., M.R.C.S. London: Baillière, Tindall & Cox. 1906. (5s. net.)
- Diet and Dietetics,** by A. Gautier. Edited and Translated by A. J. Rice-Oxley, M.A., M.D. London: Archibald Constable & Co., Limited. 1906. (18s. net.)
- German Grammar for Science Students,** by W. A. Osborne, M.B., D.Sc., and Ethel E. Osborne, M.S. London: Whittaker & Co. 1906. (2s. 6d. net.)
- Medical and Pharmaceutical Latin for Students of Pharmacy and Medicine,** by Reginald R. Bennett; with an Introduction by Henry G. Greenwich, F.I.C., F.L.S. London: J. & A. Churchill. 1906. (6s.)
- A Handbook of Medical Jurisprudence and Toxicology for the Use of Students and Practitioners,** by William A. Brend, M.A. Cantab., M.B., B.Sc.Lond. London: Charles Griffin & Co., Limited. 1906. (8s. 6d.)
- Uric Acid: The Chemistry, Physiology, and Pathology of Uric Acid and the Physiologically Important Purin Bodies, with a Discussion of the Metabolism in Gout,** by Francis H. McCrudden. New York: Paul B. Hoeber. 1905.
- Hints on the Management of the Commoner Infections,** by R. W. Marsden, M.D., M.R.C.P., D.P.H. London: Wm. Heinemann. 1906. (3s. 6d. net.)
- The Edinburgh Medical Journal.** Edited by Alexis Thomson, M.D., F.R.C.S.Ed., and Harvey Littlejohn, M.B., F.R.C.S.Ed. New Series: Vol. XIX. Edinburgh and London: Young J. Pentland. 1906.
- Guide to Anæsthetics for the Student and General Practitioner,** by Thomas D. Luke, M.B., F.R.C.S.Ed. With 43 Illustrations. Third Edition. Edinburgh: William Green & Sons. 1906.
- The Medical Annual Synoptical Index to Remedies and Diseases for the Six Years 1899 to 1904.** Bristol: John Wright & Co. 1906. (7s. 6d. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDING 21ST JULY, 1906.**

	WEEK ENDING			
	June 30.	July 7.	July 14.	July 21.
Mean temperature, . . .	55·7°	57·5°	56·2°	55·6°
Mean range of temperature between day and night, . .	28·6°	34·6°	28·2°	25·0°
Number of days on which rain fell,	4	5	3	5
Amount of rainfall, . . ins.	0·41	0·26	0·59	0·71
Deaths registered,	238	268	248	245
Death-rates,	14·9	16·7	15·5	15·3
Zymotic death-rates, . . .	0·5	0·6	0·6	0·5
Pulmonary death-rates, . .	2·3	1·8	2·1	2·2
DEATHS—				
Under 1 year,	42	49	57	48
60 years and upwards, . .	41	58	44	49
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	7	5	5	3
Scarlet fever,	2	...	...	...
Diphtheria,	4	4	2	3
Whooping-cough,	4	4	9	8
{ Fever,	1	3	3	...
{ Cerebro-spinal fever, . .	8	6	4	4
Diarrhoea,	9	8	14	6
Croup and laryngitis, . .	...	...	1	...
Bronchitis, pneumonia, and pleurisy,	36	25	32	42
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Diphtheria and membranous croup,	17	18	17	22
Erysipelas,	24	18	16	24
Scarlet fever,	24	16	13	24
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	6	5	1	4
Continued fever, . . . .	...	...	...	...
Puerperal fever,	2	1	...	2
Measles,*	142	102	41	56

* Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 28th July, 1906.

THE
GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

POST-GRADUATE DEMONSTRATION IN WARD 2,
GLASGOW ROYAL INFIRMARY, 17TH MAY, 1906.

By JAMES W. ALLAN, M.B., C.M.,
Physician, Glasgow Royal Infirmary.

I. Addison's disease.

The first case I have to bring before you to-day is this woman suffering from Addison's disease. The following report was made by Miss Picken, student of medicine:—

"Mrs. D., æt. 45, housewife, admitted on 8th March, 1906.

"*Complaint.*—General weakness; swelling of the legs and body; pain in the legs and across the abdomen of three months' duration.

"*History of present illness.*—Swelling of the feet came on quite suddenly three months ago, after the patient had been feeling out of sorts, 'done,' and breathless for a week. She does not know of anything to cause the illness. A few days after the swelling came on she had to go to bed on account of weakness, and severe pain in the feet and in the legs up to the knees. She vomited the day after the swelling came on, and after that every day for a month, several times a

day, after eating anything at all—even a drink of water came up. She felt very sick, and her appetite was gone. She had no headache, but felt very giddy. The bowels have become more constipated than usual during the illness. Six weeks after the onset of the illness swelling began on the right side of the abdomen, and breathlessness became marked. There was also pain across the upper part of the abdomen. This pain has remained as severe as at first. The pain in the legs has never gone quite away, but have lessened much in severity; the legs have also been very stiff since they began to swell. A wheezing and choking cough has troubled her since the body began to swell; it is worse at night. There is very slight expectoration occasionally, tough and greyish. Swelling in the legs diminished greatly when the body began to swell, but has never gone quite away. The swelling of the body has gone on increasing. One morning, about a fortnight ago, her face was much swollen; this lasted for more than a week. Since the beginning of the illness she has had very little sleep at night, owing chiefly to the pain in the feet; she always woke up in distress. Since the swelling of the body she has often had to sit up in bed at night owing to breathlessness. She has never been out of bed since the illness began. The bowels have moved every night with medicine. Since the abdomen became distended she has had pain in the hypogastrium, just before passing urine. The urine has been very highly coloured, but not noticeably diminished in amount. She has been losing flesh slightly, and feeling very weak. . . . The vomited matter has never been dark in colour. There has been no vomiting for a month before admission. During the illness she has noticed a decided darkening of the skin generally.

"Family history throws no light on the case.

"Personal history.— . . . She had enteric at 7. . . . She has had no swollen glands in the neck. Was never at school. She worked in a cotton-mill from the age of 8 for sixteen years. . . . Since marriage she has always had quite an airy house. For some years she has occasionally had pain after eating, and has vomited occasionally. She has never been a 'big eater.' Menstruation began at 14, and stopped about nine years ago; it was always regular, but she always had severe pains at periods. During her pregnancies she never had discolouration of the skin, but had always excessive vomiting. The bowels have always tended to be constipated.

"Present condition.—The patient lies in the dorsal decubitus. She is moderately well developed and well nourished. The complexion is brownish, she looks ill and worn, and is very dark round the eyes. The face is pale. . . . Mucous membranes of lips and conjunctivæ are rather pale. Sclerotics are slightly yellowish. The pupils are medium, equal, and active. The tongue is moist, rather tremulous, with a few whitish patches over the dorsum. There is a slight brownish tinge over the soft palate; the teeth are decayed. In front of the left ear there is an irregular patch of superficial ulceration, dry, reddish, with greyish crusts at the margin. There is a small white cicatrix at the anterior margin. She has an occasional loose, choking cough. Pulse regular in force and rhythm, medium volume, low tension, arterial wall is not palpable, 120; temperature, 98.8° F.; respirations number 30.

"Chest.—There is marked brownish pigmentation over the skin of the chest; it is dry to the touch. The chest is symmetrical, and moves fairly well with respiration; movement seems freer on the right side. *Lungs* are resonant to percussion all over anteriorly. V.F. is not increased on either side. *Auscultation.*—The respiratory murmur is somewhat harsh in the infraclavicular regions on both sides. There are no adventitious sounds. The V.R. is not well marked on either side. Posteriorly, there is no dulness over the lungs. The respiratory murmur is rather harsh all over, and there are numerous bubbling râles of medium size all over the right base; there are also a few similar râles over the left base, reaching up to about the scapular angle.

"Heart.—There is diffuse pulsation up the sides of the neck, and a heaving of the precordium with each systole. *Palpation.*—A short thrill is felt, presystolic in rhythm. The apex beat is not visible; it is felt in the fifth interspace, 2½ inches from the middle line; it is rather punctate in quality. *Percussion.*—Area of dulness: upper border at the lower border of the fourth rib—the right is at the left border of the sternum, the left is 4 inches to left of mid-sternum. *Auscultation.*—The sounds are rather thumping and toneless. At the mitral area the first sound is rather broken up, suggesting a reduplication. At the pulmonic area there is a short V.S.; the second sound is not accentuated. In the other areas the sounds are free from murmurs.

"Abdomen is much distended, and is symmetrical. The lineæ albicantes are well marked, and the superficial veins

are dilated, especially on the left. The skin is markedly pigmented all over. . . . *Palpation.*—The wall is not easily penetrated owing to the distension, and there is some tenderness in the epigastric and right hypochondriac regions. The liver is felt, on deep palpation, projecting about 2 inches below the costal margin, but its sharp edge cannot be made out. None of the other organs can be palpated. There is no very distinct thrill to be made out across the abdomen. *Percussion.*—Dulness in both flanks, reaching to the anterior axillary line. The note is clear over the anterior aspect. When the patient turns on her side, the flank is clear on the upper side.

"Liver.—Dulness reaches above to the upper border of the fifth rib, below to the costal margin. Vertical measurement in mid-clavicular line is $3\frac{1}{2}$ inches. . . . The legs are swollen all over. There is a soft œdema reaching above the knee. The legs are not specially pigmented. There is marked pigmentation on the arms, on the extensor aspects; also in the axilla and in the creases of the palm.

"Blood.—

Red blood corpuscles,	4,062,000
White blood corpuscles,	11,200
Hæmoglobin,	70 per cent.

"Urine.—Faintly acid, as a rule; specific gravity, 1015 to 1020; no casts found on two examinations; haze of albumen generally present; quantity, 50 to 60 oz.

"15th March.—To-day there is definite irregularity in the heat beat, occurring about every seventh or eighth beat. Note fairly constant; subfebrile temperature."

9th March.—Suprarenal extract, $2\frac{1}{2}$ grs., morning and evening.

31st March.—Suprarenal extract, 5 grs., morning and evening.

On the latter date there is a note in the therapeutical chart to the effect: "Patient thinks she is a little stronger, and she can take more freedom with herself. Pulse has been ranging from 96 to 128."

Dr. Macgregor notes on 14th April:—"This patient has made very steady progress—has been consciously regaining strength and appetite, although there has been no gain in weight. Cardio-vascular condition is much the same, but the dropsy and ascites are entirely gone, and patient is now getting up for short periods with ease and without any shortness of breath. Temperature has been normal throughout."

5th May, 1906.—*Blood count* (by Dr. MacCallum)—

Red blood corpuscles,	4,000,000
White blood corpuscles,	4,600
Hæmoglobin,	65 per cent.

From admission till the morning of 9th May, temperature ran from 97·6° to 100° F; the pulse from 94 to 132; the respirations from 22 to 42.

A word as to diagnosis in this case. We know that pigmentation of the skin is not confined to Addison's disease; it is found associated with malignant disease, phthisis, disease of the uterus, and pregnancy. We also encounter it in connection with chronic arsenical poisoning. But in the case under observation we have other indications which point to Addison's disease—vomiting, marked asthenia, and breathlessness. These, in conjunction with pigmentation, seem to me to justify the diagnosis. Two hæmanalyses have been submitted to you. Anæmia is not now reckoned an essential feature of the disease.

As to treatment, it has been conducted on the lines indicated by the pathology of the malady. We know that in the great majority of cases of Addison's disease, examined *post-mortem*, there is found tubercular disease of the suprarenal capsules. Physiology teaches us that the secretion of the medullary portion of the suprarenal gland has the property of increasing the blood pressure. We recognise that low blood pressure is one of the characteristics of Addison's disease; and we infer that this low blood pressure, and the other signs and symptoms of the disease, are due to the absence, or diminution, of the suprarenal secretion—caused by the mischief in the glands; and we expect that by administering suprarenal extract to the patient we shall raise his blood pressure and relieve, or banish, his other abnormalities. And in many instances such has been found to be the case; but it must be confessed at the same time that failures have been experienced.

Two theories of the causation of Addison's disease have been advanced—one, that it is due to disease of the suprarenal capsules: the other, that it is due to a nervous cause, *i.e.*, to mischief in the sympathetic plexuses near, or in, the gland. Some contend for a combination of these theories. It would occupy too much time to enter here into the *pros* and *cons* of this controversy—suffice it to say that we are led back to the glands as the real seats of the defect which gives rise to the disease we are now discussing. In cases where the glands appear normal, and the sympathetic plexuses are diseased, we

must infer that the latter must have had an inhibitory action on the function of the former; or that inflammatory or other changes in the neighbourhood of the glands have had the effect of interfering with the blood-vessels or lymphatics of the glands in such a way as to prevent the formation of their secretion. In the treatment of this disease, suprarenal gland has been administered by mouth, and also by subcutaneous injection, but the latter has been found to be attended with danger.

In the meantime it would seem that we must content ourselves with the internal administration of suprarenal gland; and good results have in many cases been obtained by this method. The patient now before you has been treated in this way, and she has improved under it.

II. *Acromegaly with marked glycosuria.*

I have now to call your attention to this patient, Mrs. R., aged 50, suffering from acromegaly, accompanied by marked glycosuria. She was admitted to the Royal Infirmary on 3rd February, 1906.

The following is Dr. Macgregor's report in the Ward Journal:—

" . . . The thirst and weakness of which patient complains are of recent onset, the former becoming noticeable within the past six months, and becoming associated with great appetite; though it is liable to fail at times, on the whole it has been abnormal. She noticed she was eating and relishing much larger quantities of food than she used to, for she passed as a rather poor eater. . . . Amongst the symptoms are sweating. . . . On chest and back there is a diffuse papular eruption, itchy and faintly reddened, fairly copious, of three weeks' duration.

"The sensation of muscular weakness is considerable. The enlargement of the features, and of the hands and feet, began about ten years ago. The extremities began three years before it was noticed that her features were altering, so that to her friends she became unrecognisable. She used to wear a No. 3 boot, then, 4, 5, 7, and then they had to be made to measure; similarly with her gloves—a kid glove can not be bought to fit. Her ring had to be cut off every year. The growth thus seems to have been uniform, though she is aware of some shrinking within the past few months.

"Headaches began to trouble her ten years ago, at a time when she was pregnant. They were very severe at the time, and gave rise to sensation of expansion, giving the idea of

four heads lying on the pillow. The pain was of a bursting, splitting character, and since then she has had scarcely any freedom from pain, though of varying severity. Latterly, last year, the character of the headaches has altered—a feeling of general crushing takes the place of the previous feeling of individual spots of shooting pain from back to front. Exertion causes a feeling of giddiness and emptiness of head; even talking gives rise to vertigo. At present the headache is almost gone; at least there is no violent pain, though various sensations, as of lightness, compression, &c., are present.

“Previous history.—As a child, had measles: had also typhus and typhoid; had also some epistaxis and hæmorrhoids, but previous to present complaint.

“Present condition.—Lies in comfort: no headache; some feeling of compression of head. Some slight ‘sleepy’ feelings, and cold spasms in fingers occasionally present. When walking the sensation is as if treading on air, at some distance above the ground, as if walking on the thighs. Skin moist; no excess of perspiration: eruption as above noted. Mental condition excellent, memory good, some hallucination of vision lately, and some neurotic symptoms. Feeling of weakness and muscular fatigue. Muscular nutrition and power are rather below average. Temperature is normal; no glandular enlargements; no localising motor symptoms of cerebral disturbance.

“Facies.—Complexion is dark, with dark circles round the eyes. Face has broadened rather than elongated, is flattened, with great coarseness of features resulting. Nose large and flat, with gaping *alæ nasi*, and large orifice. Mouth long, with thick, coarse lips. Some prominence of frontal eminences. Hair not unusually coarse. Skin is pale, with yellowish tinge. Jaws are large, and tongue very much hypertrophied. Eyes: no diplopia; no nystagmus; pupils react naturally and equally to light and accommodation. Cranium nerves are functioning naturally. No pathological appearances in fundi of eyes. The ears do not seem enlarged. Mouth is dry, and patient is continually asking for water. Teeth are quite gone.

“Hands and feet show a marked and symmetrical enlargement; the feet particularly are massive and unwieldy. There is no disability however. She can walk with ease, and use her fingers for knitting, &c. There is considerable curving of nails. No other parts of the body take part in the hypertrophy.

“She mentions that she can often feel grating in both knees on movement; none can now be detected. Ribs—some

nodularity at external ends. . . . Appetite is abnormally good. She used to have attacks of flatulence, with pain and suffocative sensation over cardiac region, easily dispelled by a teaspoonful of brandy."

I must now say a few words on the urine, the condition of which formed a marked and important feature in this case. The patient was found to be suffering from pronounced glycosuria. Taking the period from 23rd February to 20th March, we find the quantity of urine passed daily to range from 124 oz. to 298 oz.; the amount of sugar from $6\frac{1}{2}$ oz. to 16 oz.; the grains per oz. from 17.5 to 43.75; the specific gravity from 1035 to 1043; the amount of urea from 474.6 grains to 834.7 grains; albumen absent or only a "cloud" or "haze" (frequently phosphates on heating); the reaction varied from feebly alkaline and alkaline to very slightly acid, slightly acid, and acid. I find only one note of the employment of Gerhard's test, and it was negative.

The patient's weight on 23rd February was 13 st. $6\frac{1}{2}$ lb.; on 2nd March, 13 st. 9 lb.; on 9th March, 13 st. 10 lb.; and on 16th March, 14 st.

On 7th February patient was put on pituitary gland substance, 2 grs. morning and evening. On 24th February this was increased to 2 gr. tabloid, three times a day.

On 9th March it is noted in the therapeutical chart—"Patient feels stronger; less giddy; sleeps better."

She was dismissed on 21st March, 1906.

Patient was re-admitted on 2nd May. The following figures refer to the period from admission till morning of 11th May:—Temperature from 97.8° to 99.8° F. Daily amount of urine—day of admission, 30 oz. noted, then 104, 110, 127, 104, 140, 114, 150.

It is recognised that we may have glycosuria or polyuria in cases of acromegaly. In this case the glycosuria is very pronounced. I now draw your attention to the skiagraphs, for which I have to thank Dr. Riddell.

As to treatment, this patient has been put on the lines which seem to be indicated by the pathological changes found in the cadaver. Morbid alterations in the pituitary body are met with in persons who have suffered from acromegaly. It must be admitted that changes in other glands have also been observed—the thyroid, thymus, and perineal glands.

But with our present knowledge our attention is particularly directed to morbid conditions of the pituitary gland, such as tumour. No doubt the various ductless blood glands have a

mutual reaction on each other, and in health maintain a balance. This subject has been carefully studied by Dr. Lorand, of Carlsbad, to whose very interesting writings I must refer you.

This patient got pituitary gland, and apparently with benefit, as indicated by note of 9th March. Latterly she was put on pineal gland (1 gr. morning and evening) along with pituitary body, but as she went home and the remedies were stopped *pro tem.*, nothing can be said of their combined treatment. She left the infirmary on 12th May.

Indeed, the subject of treatment in a disease like this is one on which one must speak very cautiously and modestly. As regards the subjective symptoms, we must rely entirely on the patient's statements, and as regards the objective phenomena—the enlargement of the face, hands, and feet—can we reasonably expect much more than an arrest of the abnormal developments? And it is to be borne in mind that the disease may run a long course, and that it may become stationary spontaneously.

The patient promised to come here to-day to show herself, and, as you see, she has kept her word.

I shall now call your attention for a moment to a case displaying the stigmata of congenital syphilis; to another case of rheumatoid arthritis, which has been treated internally and locally with iodine, with unsatisfactory results, I am sorry to say: and, finally, to a blood specimen showing the *plasmodium malariae*. This specimen is taken from a man in Ward 1, who was sent in with pneumonia, but who suffered from malaria in India, and the particularly interesting thing is that the man left India ten years ago!

The organism was found by Dr. Campbell of the Bacteriological Laboratory, and was also seen by my clinical assistant, Dr. Henderson.

We shall then adjourn to the Electrical Department where Dr. Riddell has kindly arranged to demonstrate to you the orthodiagraph which was referred to at our last meeting.

In conclusion, I have to thank Dr. Henderson, my clinical assistant; Dr. Macgregor, my late house physician; Dr. MacCallum, my present house physician; Miss Mercer, and the other nurses, for their kind aid. I must also acknowledge Miss Picken's painstaking report.

UNUSUAL CASE OF RUPTURED TENDO ACHILLIS.

By DUNCAN MACARTNEY, M.A., M.D.

A. B., aged 19, was sent by Dr. Roxburgh, of Troon, to the Western Infirmary (Ward XI—Dr. Dalziel's), suffering from a rupture of his left tendo Achillis, of three months' duration. The remarkable fact about this case is that no definite statement can be given of the exact time of the accident. Usually the patient suffers such an injury as the effect of some violent act of exertion, and knows to a painful second the time of its occurrence. In this case there was no such history.

On admission, he walked with decided unevenness of gait, lifting his damaged limb in a piece, swinging the foot sideways for a new step, and making no spring when raising that foot from the ground. On examination there was no outstanding firm line above the os calcis, the tissues there being soft, but at the mid-leg there was a rounded, tumour-like mass, composed presumably of the contracted free end of the tendon and part of the gastrocnemius muscle.

On 13th April, 1905, the patient, having been anæsthetised, was turned on his face, and an incision was made from a point well above the swelling down to the os calcis in the mid-line of the leg. As was expected, the mass in mid-leg was tendon and muscle so inextricably matted together that any attempt to unravel them was deemed impossible. Instead of trying at this end, I made a transverse incision through half of the gastrocnemius muscle, well up the leg, at a place determined by careful measurement, split the muscle vertically by a longitudinal incision down its middle to a short distance above the matted tendon. Freeing the severed portion of muscle, I brought the upper part of it (which was freed by the first or transverse incision) down to the lowest portion of the tendon sheath. The rupture of the tendon had been at the place of insertion, as no stump of tendon was discoverable at the os calcis. The inverted portion of muscle was then stitched to both sides of the sheath by a dozen or so separate sutures of strong catgut. What had been the inner surface of the muscle in its normal position was now outside, and *vice versa*. As I remarked at the time, and as events proved, it was putting a heavy strain on the collateral circulation.

The skin incision was closed by a number of salmon-gut sutures, and the usual dressings applied. The limb was fixed

on a highly-bent Macintyre splint, in order to relax the involved muscles as much as possible.

Everything went well for ten days or so, when a puffiness appeared round the lower end of the wound. Prepared for this, I took out two or three stitches in the neighbourhood, and saw a whitish piece of sloughing tissue at the bottom of the wound. The wound was now dressed daily, and at each dressing cautious attempts were made to draw out the dead tissue. Two or three pieces were removed in this way at different times, and then the wound healed completely. As was feared, part of the transplanted muscle had died from an insufficiency of blood-supply, but enough had lived for the purpose of restoring power to the limb.

Now (nine months after operation) the lad walks well and without limping. The line of the new tendon (transformed muscle) is quite as clearly demarcated, though not of the same bulk as its fellow. The mass in the middle of the leg has practically disappeared.

CASE OF MARKED PAROXYSMAL DYSPNŒA, OCCUR-
RING IN A PATIENT WITH DOUBLE AORTIC
DISEASE, AND WHEREIN, AFTER DEATH, WERE
DISCLOSED STRIKING APPEARANCES OF CHRONIC
MEDIASTINITIS.¹

By J. SOUTTAR M'KENDRICK, M.D., F.F.P.S.G., F.R.S.E.,

Assistant to Professor of Medicine, Glasgow University; Dispensary Physician,
Glasgow Western Infirmary.

I KNOW it is not customary in this Society to read any long-winded discourse, nor even to occupy the Society's time with a clinical case, unless that case has some direct bearing on a pathological condition of interest, and where a specimen can be shown, either after death or after its removal during life.

My reason for departing somewhat to-night is owing to the fact that the heart and neighbouring parts, removed from the patient whose symptoms I shall now briefly narrate, were already shown to the Society, and briefly commented upon by

¹ Read at a meeting of the Glasgow Pathological and Clinical Society held on 8th January, 1906. "Fresh specimens" were shown to the Society on 9th October, 1905.

Dr. Teacher at a former meeting. He pointed out the complete obliteration of the pericardial sac, and marked hypertrophy of the heart, with aortic incompetency and advanced atheroma. He also showed other evidences of chronic mediastinitis and interstitial nephritis.

The patient was a sea-captain, retired from active work fully ten years ago, aged 65, and who had enjoyed particularly good health up till a year ago.

During his many journeys abroad in tropical climes he never fell sick with fever nor was incapacitated from work. He had worked hard, and during his earlier years had taken his share in the heavy manual labour of a seafaring man. He was unmarried, very abstemious, and never had syphilis or any venereal trouble whatsoever. He had never suffered from his chest to any extent, although he said he became asthmatical whenever he lived in England. He had never had rheumatism to his knowledge, nor any form of acute illness requiring medical advice. He had never had pain in chest or abdomen, nor had his sight been interfered with. He had an excellent appetite, and his bowels, although inclined to be constipated, easily acted on the exhibition of a mild laxative.

The first indication that he had of being not so well as formerly occurred towards the end of 1904, when he became easily fatigued and breathless on exertion. He noticed that, on walking into town, the breathlessness was usually present, and with it often a stiffness and pain down the left arm. He paid little attention to this until one day in January, 1905, when spending a few days in the country, the breathlessness became very acute, accompanied by great oppression in the chest and pain in the arm. His friends were greatly alarmed at his appearance, and thought he was dying. His face was white, and covered with beads of perspiration. With difficulty he was brought home, and in the course of the next few weeks he had two other similar attacks, although not so severe as the former one.

In the intervals between the attacks he felt well, and was able to eat his food with relish.

He was seen by me on the first occasion in April, 1905. He was a stout, well-built man, with strong muscles. His face was pale, but not cedematous. The pupils were equal, and responded to light and accommodation. The tongue was clean and moist. There were no tremors of tongue, arms, or legs, and no atrophic or spastic condition of the muscles. There was no cedema of the extremities. There was visible pulsation of the vessels of the neck, of the brachial, radial, and

femoral arteries, and a markedly heaving pulsation over the præcordium and into the epigastrium. The arteries were tortuous and thickened, the radials being felt like cords up almost to the elbows. The blood-pressure was not high, as evidenced by the finger, and the pulse-beats were 120 in the minute. The impulses were regular both in force and rhythm, and were distinctly of the "water-hammer" type; they were equal on the two sides. Capillary pulsation was present, as was visible pulsation of the jugulars of the neck. The respirations were easy, and not hurried. The urine, which was examined later, contained a trace of albumen and tube-casts, finely granular and hyaline. The specific gravity was not low, and the quantity rather below than above the normal. It contained no bile, blood, or sugar.

Physical examination of the heart.—A diffuse tumultuous impulse could be seen and likewise felt over the præcordial region, extending down to sixth interspace outside the left nipple line and into the epigastrium. There was no retraction of intercostal spaces. No thrill could be felt at apex or base, nor any friction. The area of cardiac dulness measured transversely fully $7\frac{1}{2}$ inches, and was limited above by the fourth rib, and on the left by a line 2 inches outside the left nipple line; while to the right it extended to from $1\frac{1}{2}$ to 2 inches to the right of the mid-sternum. No area of dulness could be made out above the fourth rib.

On auscultation a distinct, soft-blowing V.S. murmur could be heard at the extreme apex, and easily traced round into the infra-axillary region. At the base of the sternum a to-and-fro murmur could be also made out (V.S. and V.D.). These murmurs rather decreased in intensity in passing up the sternum towards the aortic and pulmonary regions, and in the latter situation the V.D. element was partly obscured by a somewhat higher-pitched second sound. These auscultatory phenomena were more easily made out after the heart-beats had quieted down under cardiac stimulants and rest in bed.

Physical examination of the chest.—The chest was barrel-shaped, and the percussion note everywhere unduly resonant, but, apart from a few rhonchi, there were no physical signs of any kind indicative of any recent or old-standing lesion.

Physical examination of the abdomen.—The liver could be felt below the right hypochondrium, and was tender on pressure. It was smooth at its lower border, and not pulsatile. The stomach was not enlarged; the kidneys and spleen could not be palpated, and there was no evidence of any abnormality in the abdominal organs. The temperature was normal.

Such, then, was the condition of the patient, and, owing to the rapidity of the heart's action, and attacks of what appeared to be angina pectoris, he was ordered to bed, put on a light, easily-digested diet, and given nitro-glycerine and strophanthus internally.

For a time he seemed to improve, but in the course of a week or so he had another severe paroxysmal attack of dyspnœa. I saw him towards the termination of the attack. He was white, with beads of perspiration on his face, the respiration gasping and accompanied by stridor, the pulse rapid and bounding, the column of blood being distinctly felt rushing along the unfilled thickened arteries. He had great oppression over the front of his chest, but no sense of impending death. He cried out for something to relieve him in his agony. Nitrites were tried, but had little effect; morphia quickly relieved him. After a day or two he had another attack, and they became so frequent in the course of time that morphia had to be withheld, as the urine was becoming scanty, and I was afraid that the morphia habit might grow upon him.

For months he had these attacks, each one resembling in most respects its forerunner, and each attack being characterised chiefly by the paroxysmal dyspnœa and the thumping, rapid pulse. At different times the attacks were held in abeyance by morphia, nitrites, chloroform inhalations, nitro-glycerine, and tetranitrol, but it was noteworthy that the nitrites and nitro-glycerine preparations had little good effect as compared with the morphia injections. For a time the heart seemed to improve during the months of August and September, so much so that the transverse cardiac measurement was fully an inch and a half smaller than at the commencement of his illness, and he was able to get up for a few hours each day. This improvement, however, was merely a passing one, for shortly afterwards the breathless attacks became more violent, and the "awful sense of dragging in the lower part of the chest," which he described, became a most prominent symptom. Towards the end of some of his attacks he frequently had cough and blood-tinged expectoration.

In time the legs began to swell, and he presented all the clinical phenomena of a failing heart, enlargement of spleen and liver, some ascites and swelling of the arms, more especially of the left arm. The urine likewise became scanty, high coloured, and highly albuminous. A few weeks before his death, with still the dragging sensation in his chest, his temperature commenced to rise and his mind to wander. The

delirium took the form of "delirium ferox," and he had all manner of delusions and hallucinations. The speech became thick, but he had his conscious moments up to the very last. When apparently no worse than usual, in the month of October, fully six months after the onset of his acute illness, the heart suddenly ceased beating, and death was the result.

From the above description it will appear to you, as it did to me during my attendance upon the patient, that he suffered from general atheromatous disease, with Bright's, and a markedly hypertrophied and dilated heart, with possibly as well a general dilatation of the arch of the aorta, as evidenced by the double aortic murmur.

I viewed the paroxysmal dyspnœa, with disturbed cardiac action, as a form of pseudo-angina, and was fully prepared to find that there was pressure on one or both bronchi by the dilated aorta. I knew that there was no pressure on the recurrent laryngeal nerves, œsophagus, arteries, or veins, but I was not quite satisfied with any theory that could account for the "dragging sensation in the chest," and the hard, throbbing, rapid cardiac action during the dyspnœal attacks.

I was permitted a *post-mortem* examination, and the following interesting report was made out by Dr. Teacher:—

"The body is well nourished; there is considerable œdema of the lower limbs and general anasarca. Rigor mortis and hypostasis are well marked.

"The abdomen contains only a small quantity of clear serous fluid.

"*Thorax.*—In removing the sternum, the areolar tissue of the mediastinum is noticed to be abnormally tough and abundant; it is also highly œdematous. On drawing aside the left lung, the pericardium appears unduly vascular, and on attempting to open the sac it is found that there has been old-standing adhesion of the two layers to one another, which amounts to complete obliteration of the cavity—the vascular surface is found to be practically the surface of the heart. The left lung is free over the greater part of the area normally in apposition with the pericardium. The heart, enclosed in its adherent pericardium, therefore appears to be free over its upper and left aspects, and the apex (constituted by the left ventricle), which is found to be overlapped to a considerable extent by the lung, is free from both lung and thoracic wall. The adhesion of the anterior aspect of the ventricles to the posterior surface of the sternum also appears to have been fairly loose. On the other hand, the heart is bound to the diaphragm by a thick layer of tough and fairly firm connective

tissue which, especially near the apex, contains numerous blood-vessels. The whole right surface of the heart is firmly adherent to the right lung.

"The heart is much enlarged, weighing 32 oz., the left ventricle being the principal seat of the hypertrophy; its wall is almost 1 inch thick; that of the right ventricle is a quarter of an inch thick. There is comparatively little dilatation of the ventricles. The myocardium is firm, but shows brown pigmentation and some diffuse fibrosis; the latter is well marked in the muscoli papillares. Long *ante-mortem* coagula extend from the ventricles into the aorta and pulmonary artery. The auricles are somewhat dilated and hypertrophied. The right contains a large *ante-mortem* coagulum. The aortic cusps are thickened generally, adherent to one another, and retracted. The orifice appears slightly stenosed; the valve has been incompetent. The other valves appear normal. The mitral and tricuspid orifices are distinctly above normal size, the former admitting four fingers.

"The arch of the aorta presents considerable general dilation; its walls are everywhere thickened and irregular from advanced patchy atheromatous disease. This extends also down the whole aorta and into the arteries, and there is advanced calcareous infiltration of the patches. The orifice of the left coronary artery is clear, but the lumen of the vessel is obstructed by many atheromatous patches. The orifice of the right coronary artery is considerably narrowed. There appears to be no thrombosis in the veins.

"*Lungs.*—The left is adherent to the thoracic wall by old fibrous bands; but, as already described, is free from the heart. The right is everywhere covered by old firm adhesions. In the right axillary region a large, flat, hard mass, of roughly circular outline and fully 5 inches in diameter, is found, firmly adherent to the lung, and compressing it to a considerable extent. This is composed of an outer layer of very dense fibrous tissue and plates of cartilage, enclosing a large mass of yellow cheesy-looking substance—for the most part calcareous matter. It measures fully 1 inch at its thickest part. At one point this mass is incorporated with the surface of the lung, and under the adhesion is found a nodule, about the size of a marble, of cartilaginous and calcareous matter enclosed in a fibrous capsule and imbedded in the lung; it presents the appearance of an old abscess or tubercular focus in the lung, and a localised empyema which had developed in connection with it. The mass is dissected from the ribs without much difficulty. Apart from this no localised lesion is found in the

lungs, but they are highly œdematous. There is not much evidence of bronchitis or emphysema.

“Abdomen.”—The liver is enlarged; the surface appears slightly nodulated, and the section shows ‘nutmeg’ character, indicating long-standing venous congestion. The spleen weighs 8 oz., and is firm, tough, and congested. There is a deep cicatrix on the upper surface, probably the result of an old infarction.

“The kidneys show very marked passive congestion; the capsules are adherent, the surface finely granular, the cortex somewhat thinned and irregular. The vessels are atheromatous and prominent, but the condition is a fairly advanced chronic interstitial nephritis rather than secondary to arterial disease.

“The stomach and intestines are distended and somewhat congested.

“The brain was not examined.”

The *post-mortem* examination thus showed that the thoracic condition was one of adherent pericardium or mediastino-pericarditis, and in view of these conditions let me now briefly comment on the more striking features of this case.

In the first place, the *etiology* of the disease must still remain unsettled. There was no history of any previous lung or pleural involvement, either by disease or accident, and the physical examination of the chest, even up to a few days before death, was entirely negative. There was no dulness to percussion, tubularity, friction, or râle to be made out, and yet from the appearance after death, there was not only matting together of the lungs and pleuræ with the parietes and diaphragm, but actually signs of an old abscess which had undergone cartilaginous and calcareous degeneration in the left pleura and its adjacent lung. Was this an old tubercular lesion with subsequent extension to neighbouring parts and general matting together of thoracic organs as a result? or was this a septic abscess that had become partly cut off—a localised empyema which, however, was still capable of producing a chronic inflammation of the connective tissue elements around?

With regard to the *diagnosis* of the disease, in so far as it went it was right, for there was general atheroma with double aortic disease; moreover, there was Bright's disease, with a hypertrophied left ventricle and an incompetent mitral valve. It was incomplete, however, as adherent pericardium was not suspected during life, and non-recognition of

this possible condition prevented me understanding certain symptoms that could have in consequence been more easily explained.

Dr. Latham, in his article on adherent pericardium, mentions the impossibility in many cases of diagnosing the condition, and describes how evidence of it is frequently first revealed *post-mortem*.

In the present case, there undoubtedly was marked hypertrophy of the heart, but there were practically no other symptoms suggestive of pericardial disease. There was no weakened apex-beat, retraction of the intercostal spaces, absence of cardiac dulness to the right, pericardial effusion or pericardial murmur, paradoxical pulse, or swelling of the veins of the neck during inspiration, with their diastolic collapse. There were, however, marked symptoms of paroxysmal dyspnœa and angina pectoris, and I note that Sir William T. Gairdner in his clinical manual refers to a case of a woman (M. R.) who had marked dyspnœa and symptoms resembling angina pectoris, when, *post-mortem*, there were revealed evidences of "tight adhesions all over the pericardium." This patient, however, had phthisis, and empyema had been present a few years before her death.

I considered the paroxysmal dyspnœa as resulting probably from pressure on a bronchus, or from a dilated aorta, or even an aneurysm, but although the aorta was found to be dilated, there was no evidence of any such pressure. It is quite possible that the adhesions dragged upon the bronchi and prevented a free entrance of air into the lungs; but it is more likely that the dyspnœa was reflex owing to irritation of the pneumogastrics and neighbouring ganglia by the adhesions that were so abundant; and this would account for the paroxysmal character of the attacks. Another point of interest was the rapidity of the cardiac action during the dyspnœa, and the very forcible character of the beats. Was the increased rate due to a reflex involvement through the pneumogastrics and sympathetics, or was it merely due to a mechanical impediment increased by the respiratory condition, but dependent on the heart's fixity to the right lung, diaphragm, and pericardium? or again, was it due merely to aortic regurgitation with the blood forcibly propelled along thickened unfilled arteries?

The adhesions were so abundant and diverse in their arrangement that the symptoms did not conform wholly to any specific type; which I understand is so in most cases of mediastinitis, whatever be the cause.

It was not to be wondered at that treatment with nitrites and other similar preparations failed in this case, while morphia on the other hand had a distinctly beneficial effect.

In conclusion, let me say that there was no definite cause for the sudden death of the patient; but I believe that probably this too resulted from disturbed cardiac innervation, occurring in one that was worn out after a prolonged illness.

THE CLINICAL AND PATHOLOGICAL ASPECTS OF A
FULMINATING CASE OF EPIDEMIC CEREBRO-
SPINAL MENINGITIS OF THE "CONVULSIVE
COMATOSE TYPE" OF TOURDES.^{1 2}

By GEO. A. ALLAN, M.B.,
Resident Assistant, Western Infirmary, Glasgow;

AND

JOHN SHAW DUNN, M.A., M.B.,
Junior Assistant in Pathology, University of Glasgow.

WE have been induced to present a report on this case for several reasons. The disease is one of comparative rarity in the district, and this particular case is of interest in itself, owing to the extreme severity both in its sudden onset and its brief duration. Again, it furnishes a good example of the diagnosis obtained from modern cytological and bacteriological methods. And, further, the recognition of the disease is all important if, as some suggest, and as seems likely, the few cases recently observed are the beginning of an epidemic in these parts.

The case will be presented as it appeared at the time of admission and during the few hours of its rapidly fatal course, leaving till later any further remarks, although no attempt will be made to deal with the subject of epidemic cerebro-spinal meningitis in general.

The patient, C. S., a boy, aged 11 years, who resided at Port-Glasgow, was recommended by Dr. Walker to the Western Infirmary, Glasgow, where he was received on the

¹ Read at a meeting of the Glasgow Pathological and Clinical Society held on 14th May, 1906.

² Netter, *Twentieth Century Practice of Medicine*, vol. xvi, p. 165.

evening of Saturday, 14th April, 1906, in Dr. Finlayson's ward, then in charge of Dr. W. G. Dun, the former being on holiday, and to whom I am indebted for permission to report the case.

History of the illness.—On admission patient was in a condition of deep stupor, taking absolutely no note of his surroundings. He was exceedingly restless, rolling about in bed, and there were frequent muscular spasms. On enquiring at his father, it was found that the first evidence of anything definite being amiss was when moaning or crying was heard coming from patient's bed about three o'clock in the morning of the day of admission. It was then found that there was twitching of the arms and legs, his eyes rolled about, and his tongue was being protruded and withdrawn alternately. Stiffness of the body followed, with flexed limbs, rigid back, and clenched jaws. He was quite unconscious when first seen, and showed no signs of returning consciousness after. These convulsions occurred at frequent but irregular intervals, two or three taking place in an hour. No definite cry was noticed with their onset. There was no sickness or vomiting prior to, or during the course of the illness. The bowels moved with the first convulsion, but were thought to have been constipated previously.

Patient went to bed in apparently good health, though not feeling quite as well as usual. After questioning parent, it was found that there had been vague headaches for about a month before, but apparently for the last week these had been more marked. He also had a "short, sharp cough" that week. There was also the story of a fall on the day before the onset of symptoms.

Previous health and surroundings.—Previous health had been fairly good. He was said to have had measles, whooping-cough, and bronchitis, all about seven years ago. One member of the family had pneumonia, with "head symptoms," in December, 1905, and recovered. There are no other points of interest in the family history.

The housing conditions seem to have been satisfactory. Patient had not been out of Port-Glasgow since eight months ago, when he was at Rothesay. Dr. A. Campbell Munro, Medical Officer of Health for Renfrewshire, who kindly made personal investigations for me, states, that there were no signs of illness in patient's case prior to the Friday; that no other member of the family had had any illness, nor anyone resident in the same tenement; and that none of the medical men practising in Port-Glasgow could call to recollection any recent

case in which suspicion of cerebro-spinal fever could have been entertained.

Examination of patient.—Patient was observed to be much emaciated. The extremities were cold and livid, the arms presenting a dusky mottling. No rash was present on the body, neither herpetic, petechial, nor erythematous. The temperature was 101·8° F.

Nervous system.—He was exceedingly restless, tossing about from side to side of the bed, and rolling over as if in pain. Several times he would have fallen out of bed had he not been prevented. In quiet intervals he tended to lie most on his left side in a curled-up attitude. There was no evidence of consciousness, although he seemed to avoid any irritant, and winced when pinched. At intervals he had a convulsive seizure, accompanied by increased force and frequency of the respirations and diminution in the strength of the pulse. He whined as if in pain, and without any very definite clonic stage the body became more rigid. The arms were flexed at elbow and wrist, thumbs turned into the palm of the hand, and fingers flexed over the thumb. The legs were likewise flexed at hips and knees. The jaw was firmly clenched. There was no retraction of the head, but the neck shared in the general rigidity, as did also the abdominal muscles, thus causing a flattening of the abdomen. The spasm in its severity soon passed off, but there always remained a certain amount of stiffness of neck, trunk, and limbs. Knee-jerks were present but difficult to elicit owing to the spasm. Neither ankle-clonus nor Babinski's sign could be elicited. Plantar reflexes were present. The *tâche cerebrale* of Trousseau was easily produced. Kernig's sign was not present.

Respiratory system.—Breathing was rapid. Respirations numbered 40 per minute, and were irregular both in depth and rhythm. Breathing could not be said, however, to conform to the type of "cerebral grouped breathing" or to that of Cheyne-Stokes. Bronchial fremitus was well marked. There seemed to be slight impairment of the percussion note at the root of right lung; elsewhere it was clear. There was a tendency to tubular breathing over the same limited area. Abundant moist râles were heard all over the chest.

Circulatory system.—Pulse on admission numbered 80 per minute. It was small, of low tension, and regular over a short period. It was very variable in rate and force, however, at one time compared with another. The heart itself seemed normal to physical signs. The sounds were well produced, and no murmur was present.

Digestive system and abdomen.—Tongue was coated with a thick white fur. No loss of appetite was observed prior to illness. Bowels moved in response to enema, the motion being hard and lumpy. Liver dulness extended a little below costal margin. Spleen was not appreciably enlarged. The abdomen was rigid and flat, but not carinated as in tubercular meningitis. Later, when the abdominal muscles had relaxed, masses of glands were felt near the umbilicus and over the left side. Some could be distinctly made out as discrete glands, freely movable through the abdominal wall. Bladder was distended.

Eyes.—Eyelids half closed. Pupils were equal, moderately dilated, and reacted sluggishly to light. Transient divergent strabismus was occasionally observed, and at other times associated movement of both eyes to the left. Ophthalmoscopic examination revealed distension of the veins of the retina, but the edges of the discs were clearly defined, and while there may have been some hyperæmia of their surfaces there was no papillitis.

Ears.—The ears were examined to discover or exclude the possibility of extension of middle ear mischief. Both tympanic membranes were found intact and quite healthy in appearance.

Throat.—With difficulty the jaw was opened and the throat examined to see if there might be anything to suggest a malignant form of any of the specific fevers. Nothing abnormal was detected.

Nose.—There was slight muco-serous discharge coming from the left nostril.

Skeleton.—The long bones of the body were examined *seriatim*, as also the joints and the vertebral column, but no tenderness on pressure could be detected anywhere.

Blood.—Examination of the blood revealed a definite leucocytosis, there being 23,000 leucocytes per c.mm., the large majority of which were of the polymorphonuclear variety.

Cerebro-spinal fluid.—Lumbar puncture was performed, and the fluid was handed over to Dr. Dunn for examination. Films made about midnight showed a polymorphonuclear leucocytosis and the presence of the diplococcus meningitidis intracellularis (meningococcus), thus settling the diagnosis of cerebro-spinal fever within a few hours of patient's admission to hospital. (For details of examination, *vide infra*). Films from the nasal secretion were also taken and examined.

Urine.—No urine was obtained at this time, patient having passed it in bed, but a sample obtained a few hours before death presented the following characters:—It was acid, with a specific gravity of 1022, and was smoky amber in colour.

It gave a distinct reaction for albumen, and contained blood but no sugar. Epithelial, blood, and hyaline casts were seen on microscopic examination. No diplococci were seen on a stained film of the sediment.

Course of the disease.—From the time when we first saw patient (about 8 P.M.) till 6 A.M. next morning there was little change in his condition. Spasms came about every twenty minutes at first with a tendency to increase in frequency. Temperature and respiration showed little change, but pulse was very variable in rate (78 to 110), and during an attack it became almost imperceptible at the wrist. By 7 A.M. breathing tended to be slower and more difficult, and froth appeared at the mouth. Fits came every five minutes, and morphia (gr. $\frac{1}{8}$) was administered with good result. Breathing now approached very closely to the Cheyne-Stokes' type, but was not so regular nor was the dyspnœa so extreme, and only very occasionally was there any period of apnœa. It usually happened that a spasm came on at the height of a series. After 8 A.M. the continuous rattle in the chest from the churning of frothy mucus became very marked. Froth was now constantly present at the mouth, and during a spasm burst through the nose also. Temperature was now 98·8° F., while pulse numbered 78 and respirations 18 per minute. Spasms had practically ceased and the rigidity had gone from the body. Ophthalmoscopic examination (8·30 A.M.) showed a little more congestion but no neuritis. Blood was being very inefficiently aerated, and a drop for examination was quite dark. Leucocytes in the blood were increased in amount since last count, and a differential estimation showed that 94 per cent were of the polymorphonuclear variety, chiefly neutrophile. By mid-day temperature had risen to 102·2° F. and pulse to 136, and from this, together with the general condition, it was seen that the patient was sinking fast. At 12·30 there was a rapid change. Cyanosis gave place to cold pallor, respirations and pulse gradually became feebler, and patient died at 12·45 P.M., about thirty-four hours from onset of symptoms. Immediately after death some cerebro-spinal fluid was again withdrawn, and examination of it gave a similar result to last.

Remarks.—On tracing the local record of this disease from the *Glasgow Medical Journal*, one finds very few cases reported, and as no bacteriological examination was made in any of these, one is left in doubt as to whether the microbic factor was the micrococcus of Weichselbaum, the pneumococcus of Fraenkel, or some other organism.

In March, 1883, Dr. Finlayson¹ communicated to this Society the report on a case of cerebro-spinal meningitis which came under his care in the Western Infirmary in the previous month, and showed *post-mortem* specimens from the same. The duration of the disease was eight days. The appearances in brain and cord conformed to the type met with in epidemic cerebro-spinal fever. Both he and Dr. Wm. Frew, of Kilmarnock² (who reported the Galston epidemic), made search and could find no record of any authentic case having occurred in Scotland before that time. Dr. MacLagan, of Dundee, had reported a case in 1878, but neither of the above considered the diagnosis as accurate.

In April-May, 1883, Sir William T. Gairdner³ had in his wards a case which was reported. No clinical history was obtainable, but a *post-mortem* examination was made, and, in addition to typical findings, it is stated that "a micrococcus was found among the pus cells."

In 1884, Dr. Frew⁴ reported to this Society a record of six cases which occurred in the Galston district, and which he reckons as the first undoubted outbreak of the disease in epidemic form in Scotland. Of the six cases, two made a slow recovery. Four died, two of which were examined *post-mortem* and diagnosis confirmed. Two were of the fulminant variety, dying in five and fourteen hours respectively.

In 1885 Dr. Finlayson⁵ reported to this Society another fatal case, death occurring within three days, and diagnosis being confirmed *post-mortem*. The symptoms noted accorded in every detail with those of the present case.

In 1877 Dr. Anstruther Davidson⁶ reported a case which recovered, convalescence being very protracted.

In 1888 Dr. Frew² reported a further series of nine cases, of which two recovered. The duration of the fatal cases varied between two or three days and six weeks. He expressed the idea then that the disease was microbic, infection taking place through the nasal passages.

In 1892 Dr. McLachlan,⁷ of Dumbarton, reported a case which recovered.

In 1900 Dr. T. K. Monro⁸ reported a case which was under

¹ *Glasgow Medical Journal*, September, 1883, p. 219.

² *Ibid.*, March, 1888, p. 193.

³ *Ibid.*, June, 1883, p. 459.

⁴ *Ibid.*, July, 1884, p. 21.

⁵ *Ibid.*, July, 1885, p. 56.

⁶ *Ibid.*, April, 1887, p. 241.

⁷ *Ibid.*, August, 1892, p. 90.

⁸ *Glasgow Hospital Reports*, 1900, p. 253.

his charge in the Glasgow Royal Infirmary. Recovery took place in five days. No bacteriological examination was made, because the freezing of the skin prior to puncture was too painful.

In the same year a fatal case occurred in Dr. Finlayson's ward in the Western Infirmary, death taking place within forty-eight hours from onset. *Post-mortem* examination presented typical appearances in brain and cord, and in the leucocytes of the exudation were found "diplococci having all the characters of the diplococcus intracellularis meningitidis."

Last year Dr. Ivy M'Kenzie¹ reported a case following scarlet fever, the organisms found being staphylococci and streptococci.

A few other cases were mentioned in connection with discussions on some of the above, and no doubt some cases passed unrecognised; but making full allowance for such contingencies, the disease must be reckoned a rare one in this part of the country.

Just subsequent to the case now under consideration, Dr. Joseph Glaister had two fatal cases occurring in one family, death taking place in eighteen and six days from onset respectively. He and Dr. R. M. Buchanan reported these to the Glasgow Medico-Chirurgical Society on 4th May, 1906. The meningococcus was obtained from the spinal fluid by lumbar puncture *post-mortem*.

Other cases have been observed about the same time and more recently, and there can be no doubt of the existence of an epidemic of unknown extent in the vicinity of Glasgow at present, after an interval (judging from recorded cases) of about six years.

Also it would appear, as far as one has been able to trace, that this is the first recorded case in the Glasgow district where the diagnosis was made and the meningococcus got from the spinal fluid by lumbar puncture during life.

Since the earlier cases were reported, much has been done to facilitate accurate and rapid diagnosis.

In 1882 Kernig published notes on the diagnostic sign which now bears his name, although it was not till later that its significance has been investigated. With the thigh at right angles to the body, strong contracture of the flexors at the knee prevents full extension of the leg on the thigh in meningitis of cerebro-spinal type, due to whatever cause. It seems to be a valuable aid, but cannot be considered pathognomonic. It is not absolutely constant in cerebro-spinal

¹ *Glasgow Medical Journal*, May, 1905, p. 327.

meningitis, and, on the other hand, it has been found in other conditions.

It was found in thirty-six consecutive cases in the Dublin epidemic¹ in 1900-1901, and in seventy-seven cases examined by Koplik² it was present in all patients over 2 years of age, while in an American epidemic³ it was found in 90 per cent of the cases. It was not present in this case.

On the other hand, Farrand,⁴ in a recent article, says:—"Kernig's sign is far from implying always or necessarily the participation of the brain or cord in the morbid process. It has been met with in enteric fever, pneumonia, pleurisy with effusion, exophthalmic goitre, spondylitis deformans, general paralysis, méningisme, and in meningeal hæmorrhage."

In 1887 Weichselbaum⁵ described the diplococcus intracellularis meningitidis, and indicated its causal relationship to cerebro-spinal meningitis.

In 1892 Quincke⁶ described the procedure adopted in paracentesis of the vertebral canal. He had performed lumbar puncture in 22 cases, and warned against any but transitory results if used for treatment, but considered it of undoubted value for diagnosis. It would appear that he had not discovered any organism in the fluid thus withdrawn.

In 1896 Heubner⁷ reports a case in which he claims that for the first time the diagnosis was confirmed by this method during life, and the diplococci got.

Osler,⁸ in the Cavendish lecture in 1899, says:—"During the past ten years no single measure of greater value in diagnosis has been introduced."

The procedure is simple, and the technique similar to that adopted in paracentesis of any other cavity. The interspace between the third and fourth, or that between the fourth and fifth lumbar vertebræ, is the one usually selected. In none of the few cases upon which the author has performed lumbar puncture was any difficulty experienced in obtaining the fluid, and in no case was any local or general anæsthetic employed.

While it is usually stated that the practice is void of danger,

¹ Goodall, *Medical Annual*, 1904, p. 232.

² Purves Stewart, *Medical Annual*, 1906, p. 321.

³ Farrand, *Gazette des Hôpitaux*, 10th March, 1906, p. 339.

⁴ *Ibid.*, p. 341.

⁵ Netter, *Twentieth Century Practice of Medicine*, vol. xvi, p. 187.

⁶ *British Medical Journal* (Epitome), 27th May, 1893, p. 81.

⁷ *Deutsche Med. Wochenschrift*, 2nd July, 1896, quoted in *Glasgow Medical Journal*, 1896, p. 392.

⁸ *British Medical Journal*, 24th June, 1899, p. 1517.

it should be noted that cases have been reported where, in the case of cerebral tumour, withdrawal of the cerebro-spinal fluid has precipitated a fatal issue.

For diagnostic purposes several points regarding the fluid demand attention.

The naked-eye examination of the fluid may disclose a turbidity which is of great importance in the diagnosis of meningitis in the first instance, although the apparent clearness of the fluid does not exclude such a possibility.

The quantity of albumen and sugar varies in the different forms, but the exact relations are not sufficiently worked out to be of practical utility.

Examination of the cellular elements (best done from the sediment after centrifugalisation) is of great value, and of itself is sufficient to differentiate the tuberculous from the acute varieties. In the meningococcal type¹ about 90 per cent of the cells are said to be polymorphonuclear leucocytes, while in the tuberculous variety² 65 per cent to 99·4 per cent have been found to be mononuclear. This accorded with our own observations, for in this case, of the cells in the exudate 95·8 per cent were found to be polymorphonuclears, while in a tuberculous case received into the wards a few days later, and from which tubercle bacilli were obtained from the spinal fluid by lumbar puncture during life, the cells were found to be chiefly lymphocytes.

The bacteriological examination, with the discovery of the organism, is, of course, the essential criterion, and would certainly be necessary before one could distinguish between meningococcal and pneumococcal types of the disease.

The presence of the meningococcus in the nasal secretion is important, and its presence has been demonstrated without doubt in a large number of cases. Its similarity in morphological characters with the more benign organism, micrococcus catarrhalis, necessitates extreme care in examination. It disappears early from the nose. In the Silesia epidemic,³ in 635 examinations, it was found in 23 per cent of the cases.

The question of contagion is important, but opinions vary. Dr. Joseph Priestley,⁴ Medical Officer of Health, Lambeth, says, "It is not directly contagious from person to person, neither is it transmitted by clothing or the excretions"; while

¹ Purves Stewart, *Medical Annual*, 1906, p. 323.

² *Archives of Pediatrics*, September, 1902, quoted in *Glasgow Medical Journal*, November, 1902, p. 397.

³ Farrand, *Gazette des Hôpitaux*, 17th March, 1906, p. 377.

⁴ *Medical Annual*, 1906, p. 557.

Netter,¹ after discussing the subject at length, says, "I believe that the contagiousness of the disease is indisputable, and that this is the most essential etiological factor."

Of treatment one word must suffice. Lumbar puncture as a therapeutic measure has been found wanting, affording, if at all, only transitory relief. Ice-cap, spinal ice-bag, and opiates allay pain and irritation and combat excitement. Subcutaneous injections of perchloride of mercury are still on trial.

Warm baths at 98° F. for half an hour two or three times a day, introduced by Aufrecht in 1894, seem most in favour at present. They are recommended by Osler,² while Netter³ goes so far as to call this a specific method of treatment in this disease.

Report on the specimen of cerebro-spinal fluid obtained from the above case, 14th April, 1906.—The fluid, which amounted to about 3 c.cm., was received in a sterilised syringe. It was slightly turbid and showed no evidence of blood admixture. A few drops of it were at once inoculated, by means of a platinum loop, on each of two blood agar tubes, and on a plain agar tube, and these were set in the incubator at 37° C. The remainder of the fluid was centrifugalised, and a fair amount of sediment was readily obtained. From this a number of coverslip films were prepared, and, after fixation in formol-alcohol, some of these were stained by methylene blue, and some by Gram's method, using dilute carbol-fuchsin as a counterstain.

On microscopic examination of the films numerous cells were seen, the great bulk of them (95·8 per cent) being polymorphonuclear leucocytes. The remainder were endothelial cells and lymphocytes. A rather scanty proportion (2·3 per cent) of the polymorphonuclears were seen to contain organisms. These were micrococci about the size of the ordinary pyogenic cocci. They were of oval shape, and occurred in pairs, the long axes of the individual organisms lying parallel. Most of the cells which contained organisms had only one pair, and the greatest number of pairs seen in any one cell was four. The organisms were Gram negative.

Cultures.—All the culture-tubes were apparently sterile after incubating for forty-eight hours, so at the end of that time they were re-inoculated from the water of condensation by allowing the latter to flow over the surface of the medium,

¹ *Twentieth Century Practice of Medicine*, vol. xvi, p. 206.

² *Principles and Practice of Medicine*, sixth edition, p. 164.

³ *Twentieth Century Practice of Medicine*, vol. xvi, p. 178.

and were then returned to the incubator. After a further twenty-four hours a copious growth was obtained on the blood agar tubes, but none on the plain agar. The growth consisted of numerous separate rounded colonies of varied size, the largest being the size of a small pin's head. They were flat and rather transparent, greyish in colour, and of viscid consistency. In films from the colonies the organisms were seen to be morphologically identical with those in the cells of the cerebro-spinal fluid. They stained readily with ordinary dyes, but did not retain Gram's stain when tested against the staphylococcus pyogenes aureus. Attempts were made, two days later, to obtain subcultures of the organism on blood agar, but none of these were successful. Films taken from the original cultures at this time showed numerous degenerated involution forms.

Nasal Mucus.—After the organism had been found in the cerebro-spinal fluid, films were prepared from the nasal secretion. Numerous free organisms of various kinds were seen, but the pus-cells contained numerous diplococci similar to those already described. No attempt was made to obtain cultures of these.

Post-mortem examination.—This was made on 16th April, twenty-four hours after death. It was conducted by Dr. Teacher, of the pathological department of the Western Infirmary. The report is as follows:—

“External appearances.—The body is that of a slightly wasted boy. There are no distinctive external marks of disease. Rigor mortis and hypostatic staining are well marked.

“Cranium.—The dura mater bulges slightly. There are *post-mortem* clots in the sinuses. The subdural fluid is not increased in amount, and is quite clear. The pia arachnoid is markedly congested, and there is a purulent exudate along the vessels and in the sulci over nearly the whole of both hemispheres. Though widespread, it is not abundant, and it does not extend over the convolutions. It is more abundant on the base of the brain and over the pons and medulla, being most marked in the region of the optic chiasma and infundibulum. It is not specially marked in the region of the olfactory lobes and cribriform plate. The fluid in the ventricles is only slightly turbid. The ventricles are not dilated, nor are their walls softened.

“The spinal cord shows changes much more striking than those in the brain. A thick layer of opaque, yellowish exudate extends, under the arachnoid, from the upper cervical

to the lower dorsal region, becoming rather thicker as it descends, but again thinning off towards the lumbar region. The soft membranes are much congested.

"*Thorax.*—There are old pleuritic adhesions over both lungs. The larger bronchi are full of secretion, and their coats are congested and give evidence of acute bronchitis. There are irregular areas of consolidation in the lower lobe of the left lung.

"The heart is quite normal.

"*Abdomen.*—The liver and kidneys show a condition of cloudy swelling. The spleen is slightly enlarged, soft, and rather pale. There are some caseous and calcareous tubercular glands in the mesentery. No other evidence of tuberculosis is found in any of the organs."

Histological examination.—The portions of the organs taken were fixed in a saturated solution of corrosive sublimate. Sections were cut by the paraffin method. For the general histological appearances the stains used were hæmalum and eosin. To demonstrate the organisms in the tissues, Unna's method was adopted.

- | | | |
|-----|---|------------|
| (a) | 5 per cent saturated aqueous solution of eosin. | |
| (b) | Methylene blue, | 1 part. |
| | Potassium carbonate, | 1 part. |
| | Water, | 100 parts. |

1. Stain in (a) for twenty to sixty minutes.
2. Wash in water.
3. Stain in (b), diluted 1 in 10, for one to two hours.
4. Wash in water.
5. Destain in methylated spirit.
6. Dehydrate in absolute alcohol, clear, and mount in Canada balsam.

Cerebrum.—The changes seen are those of an acute leptomeningitis. The vessels of the pia mater are much congested, and many contain dense groups of leucocytes, chiefly polymorphonuclears. There is an abundant purulent inflammatory exudate around the vessels, especially in the sulci and in the septa between adjacent convolutions. It is also visible in the perivascular lymphatic spaces of the cortical vessels. The cells composing the exudate are chiefly polymorphonuclear leucocytes, a small proportion of which contain diplococci. A noticeable feature is the presence of numbers of large mononuclear cells, which exhibit marked phagocytic properties towards the polymorphonuclears. Some of them have taken

up a dozen or more of the latter, and appear like closely-huddled masses of leucocytes. Little fibrin or blood appears in the exudation, and no endarteritis is seen in the vessels, such as are described in acute meningitis due to the pneumococcus, &c. No definite evidence is obtained of degeneration in the substance of the brain, of hæmorrhage, or of neuroglial proliferation. A few isolated polymorphonuclear leucocytes are found scattered free in the brain substance, but no micro-organisms are found here. The changes in the olfactory lobes are similar to those described; they are not more marked or more advanced than elsewhere.

Spinal Cord.—The meninges show changes similar to those in the cerebral membranes. The exudation is almost confined to the posterior aspect, but is also abundant about the posterior nerve roots. It can be traced to the sheaths of the spinal ganglia. Small hæmorrhages are seen in the substance of the cord, the blood being effused between the nerve fibres rather than causing destruction of them. Diplococci occur in some of the cells of the exudate; none are seen in the substance of the cord.

Lungs.—The consolidated areas from the left lung show much leucocytic exudation, with little fibrin, in the alveoli. There are evidences of commencing necrosis in the centres of the patches, with some hæmorrhage. The bronchi contain pus, but there is little infiltration of their walls or destruction of their mucous membranes, so it seems possible that infection of the lung has occurred by the blood-stream, and not by the bronchi. This supposition is favoured by the fact that the larger vessels in the affected areas show a condition of somewhat recent thrombosis. However, there are no collections of leucocytes found in these vessels, such as might have come, as emboli, from the meningeal veins, and no organisms are found in the thrombi. Diplococci are seen in some of the cells in the lung alveoli, and they exist in large numbers in the polymorphonuclears in the bronchi. Most of them are Gram positive, but many of them are Gram negative and show the characteristic form of the diplococcus meningitidis. The latter are more easily made out in a smear taken from the cut surface of the lung at the *post-mortem*.

Cribriiform plate and olfactory tracts.—The bony parts were decalcified by immersion in sulphurous acid for about three weeks. Sections were then made in the ordinary way. The nasal mucous membrane in this region is in a practically normal condition. The olfactory epithelium is *in situ*, and there is no evidence of acute inflammatory change in the

underlying connective tissue. Some of the lymphatic spaces, which pass through the foramina of the cribriform plate, are packed with polymorphonuclear leucocytes, but it seems probable that these are passing from the inflamed meninges outwards, as no inflammatory foci are found in the nasal fossæ.

Remarks.—The organism found in the cerebro-spinal fluid has all the morphological and cultural characters of that described in 1887 by Weichselbaum in six cases of epidemic cerebro-spinal meningitis and named by him the diplococcus meningitidis intracellularis. This organism has since been fully recognised by the work of many observers as one of the main etiological factors in meningitis, and has been by many considered the sole cause of the epidemic form. Netter,¹ however, attributes to the pneumococcus an almost equal importance with the meningococcus as an agent in the production of the epidemic disease, and cites a large number of epidemics observed by himself and others, chiefly on the Continent of Europe, where the pneumococcus was the infecting agent.

Weichselbaum described his organism as being destained by Gram's method, and considered this feature as invariable. Later investigators, notably Jäger, have described a type of meningococcus which retains Gram's stain, and such is the case in a specimen reported quite lately by Vansteenberghe,² so apparently variations may occur in this respect.

It is interesting to note that, though the symptoms in the present case were so acute and the pathological changes so widespread, still the organisms occurred in very small numbers in the exudation. Councilman³ found the organisms most abundant in acute cases, even in one which died in less than forty-eight hours after onset, and least abundant in chronic cases, where they might be found with difficulty.

The occurrence of diplococci inside the cells of the nasal secretion has been frequently noted in epidemics, but it cannot be said to be of diagnostic significance, as similar organisms may occur in the nasal secretions of healthy individuals who come in contact with patients suffering from meningitis.

¹ Netter, *Twentieth Century Practice of Medicine*, London, 1899, vol. xvi.

² Vansteenberghe and Grysez, *Annales de l'Institut Pasteur*, 25th January, 1906.

³ Councilman, Mallory, and Wright, *A Report of the State Board of Health of Massachusetts; Epidemic Cerebro-Spinal Meningitis and its Relation to Other Forms of Meningitis*, Boston, 1898.

Again, such intracellular diplococci may really be the micrococcus catarrhalis¹ which is indistinguishable from the meningococcus except in culture.

The changes found microscopically in the meninges of the present case correspond pretty well with the description of those seen in the acute cases in the Boston epidemic.² Apart from the finding of the characteristic organism, the most notable features are the absence of endarteritis in the meningeal vessels, and the presence in the exudation of the large phagocytes ingesting pus cells. These phagocytes are less common in septic meningitis due to other organisms, whereas, in the latter, endarteritis is not infrequently seen.

Councilman² has described pneumonia due to the meningococcus in eight out of forty-five cases which came to *post-mortem*. The organisms occurred in large numbers in the pus cells of the alveoli, and the lesions varied from patchy consolidation to a condition resembling lobar pneumonia. In these cases the infection was believed to be carried by the blood. In one case a plug of leucocytes was discovered in a vessel in the centre of a consolidated area, and it was believed that this had come as an embolus from the meningeal vessels.

The conditions seen in the olfactory lobes and cribriform plate do not definitely point to infection occurring through the nasal passages. It is at least equally likely that the organisms in the nasal secretion reached the nose through the lymphatics from within the cranium. This tendency of the organism to spread peripherally, as to the nose and to the conjunctivæ, has been commented on by Vansteenberghe.³

I have to express my indebtedness to Professor Muir for permission to publish the case, and to Dr. Teacher for his notes on the *post-mortem* appearances.

Since the above notes were made, two further fatal cases of cerebro-spinal meningitis have come under our notice in Dr. Finlayson's wards in the Western Infirmary, in addition to the case of tuberculous meningitis mentioned above.

The first case was that of a labourer, æt. 36, residing in Partick and working in Yoker. He took ill suddenly on the evening of 10th May, with headache, sickness, and vomiting, followed very shortly by wild delirium. He had been in good

¹ Leifert, 1896; see Dunn and Gordon, *British Medical Journal*, 28th August, 1905.

² Councilman, Mallory, and Wright, *vide supra*.

³ Vansteenberghe and Grysez, *vide supra*.

health previously, and had been at work all day. He was admitted to hospital on 11th May in a condition of deep stupor, with restlessness. In the absence of any history at time of admission, examination revealed a slight paresis on right side of body. There was no rash, no rigidity, and no retraction of head. Pupils were equal, and there was no squint. Temperature, 97·8° F. Next day he became conscious, and took food, and answered questions slowly, but by night again lapsed into a semiconscious state. Squint and inequality of pupils developed towards night, with commencing optic neuritis. Next day he was quite unconscious, with retracted head. There was considerable respiratory distress. During the day pulse rose to 160, respirations to 52, and temperature to 106° F. just before death, which occurred at 12·15 A.M., the patient having thus been unwell for three days seven hours.

Fluid removed by lumbar puncture revealed meningococci in great abundance without centrifugalising, and a polymorphonuclear leucocytosis. The lesions seen *post-mortem* were similar to those described above.

The next case was that of a girl, æt. 12, residing in Plantation, S.S., who took ill with a rigor on 2nd May. She was restless for the next few nights, but not confined to bed during the day. On 5th May headache developed, and persisted throughout the illness. Sickness and vomiting were very severe during next two days. Squint also developed. For fourteen days there was little change, when pain of extreme severity in the lumbar region supervened, associated with great restlessness. She was admitted to hospital on 23rd May, and died on 26th May, 1906. Without detailing the course of the symptoms the following may be mentioned:—Rigidity of the limbs and trunk was quite distinct; retraction of head was well marked; Kernig's sign was typically present; knee-jerks were active, but no clonus; pupils equal throughout, but paresis of left external rectus; vertical nystagmus noted; no ear discharge; no lung condition. Lumbar puncture was performed shortly after admission, and showed the presence of *pneumococci* free in the cerebro-spinal fluid. A conjunctivitis which developed also contained pneumococci. Over the throat there was a whitish, curdy membrane, which, on microscopic examination, was found to be thrush, and showed the parasite *Oridium albicans*. On the day before death, twitching of the face was observed for the first time, and there were also several generalised convulsions. Patient remained now deeply comatose. During last day or two the breathing was decidedly

cerebral in character, and very distressing, increasing in frequency up to 100 respirations per minute, with short periods of almost apnoea. On day of death pulse rose to 160 per minute, and temperature to 107.6° F. Duration of illness, twenty-four days.

A *post-mortem* examination was also obtained in this case. The lesions were similar to the previous ones, the only difference being in the presence of pneumococci instead of meningococci in the others. There was no evidence of antecedent pneumonia, and no local inflammatory focus in the middle ear or elsewhere.

CURRENT TOPICS.

APPOINTMENT TO THE CHAIR OF PHYSIOLOGY AT GLASGOW UNIVERSITY.—The King has been pleased, on the recommendation of the Secretary for Scotland, to appoint Diarmid Noel Paton, M.D., B.Sc., Superintendent of the Research Laboratory of the Royal College of Physicians, Edinburgh, to be Regius Professor of Physiology in the University of Glasgow, in place of Professor J. G. McKendrick, resigned. Dr. Paton was born in 1859, and is a son of the late Sir J. Noel Paton, the well-known artist and Royal Scottish Academician. He was educated at the Edinburgh Academy, and at the University of that city, and afterwards studied at Vienna and Paris. In 1882 he was Baxter scholar in Natural Science, and two years later he won a Biological Fellowship at Edinburgh University. He has long been recognised as a distinguished physiologist, and has written a large number of papers on physiological as well as fishery subjects. In 1886 he was appointed Lecturer on Physiology in the School of Medicine of Royal Colleges, Edinburgh, and three years afterwards he took up the duties of Superintendent of the Research Laboratory of the Royal College of Physicians, Edinburgh. In 1900 he served as a member of the Royal Commission on Salmon Fisheries.

POST-GRADUATE CLASSES AT THE ROYAL INFIRMARY.—The syllabus of the autumn post-graduate course at the Royal Infirmary has just been issued. The course commences early

in the present month, and, with the exception of one or two of the classes which meet in October, will be completed in a little over three weeks. The opening lecture of the course will be delivered by Major George Lamb, M.D., I.M.S., who has taken for his subject "The Etiology of Plague." The various classes, which are to be conducted by the physicians and surgeons of the Infirmary, will receive instruction by demonstrations and ward visits. In addition, classes will be formed in Practical Pathology and Bacteriology.

In Clinical Medicine, Dr. Lindsay Steven will demonstrate diseases of the chest and abdomen; and Dr. Monro, diseases of the nervous system, and modern methods of examining the stomach. In Clinical Surgery, Dr. Newman will demonstrate the use of the cystoscope and x -ray photography in diseases of the urinary tract. Drs. Barlow, Rutherford, and M'Gregor will also take part in demonstrations of surgical cases. Diseases of the Ear, and of the Throat and Nose, will be taken up by Drs. Kerr Love and Fullerton respectively; in these subjects the classes will be limited. Dr. Maitland Ramsay will conduct the course on Ophthalmology in the Ophthalmic Institute, and will be assisted by Drs. Hugh Walker and Wright Thomson, who will give tutorial instruction in refraction. Hæmatology will be in the hands of Dr. W. K. Hunter; Gynæcology, of Dr. Balfour Marshall; Practical Pathology, of Dr. Workman; and Bacteriology, of Dr. M'Crorie.

It will be seen that the course is of a comprehensive nature. The fees are as follows:—each course, one guinea; any three courses, two guineas. The last three courses are two guineas and three guineas. The syllabus may be obtained from, and enrolment should be made with, Dr. Thom, medical superintendent of the infirmary.

GLASGOW POST OFFICE: MEDICAL APPOINTMENTS.—Following upon the death some time ago of Dr. Wm. Dougan, who had been Medical Officer to Glasgow Post Office for a considerable number of years, the Postmaster-General decided to make a new departure in connection with the appointment. Owing to the growth of the department, and the consequent increase in the number of officials employed, it was deemed inadvisable to continue the system of appointing only one medical officer to be exclusively in the service of the establishment. The postal area was divided into six districts, and it was decided that a medical officer should be attached to each, those appointed being at liberty to engage in private practice. In reply to the advertisement of the positions, about three

hundred applications were received. The Postmaster-General has now made the following appointments:—

Central District—D. Watson, M.B., 116 Mains Street.

Western District—R. O. Adamson, M.D., 18 Grosvenor Crescent.

Southern District—W. Lawson, M.D., 36 Glencairn Drive, Pollokshields.

Eastern District—J. Patrick, M.B., 23 Westercraigs.

Northern District—J. M'Kie, M.B., 24 Hillside Terrace, Springburn.

Govan—R. Y. Anderson, M.B., Redclyffe, Bellahouston.

THE SERVICES: *Royal Navy*.—At the close of the course of instruction at Haslar for Surgeons of the Royal Navy on 2nd July, Surgeon L. L. Greig, of Glasgow, was awarded the Gold Medal. In the combined marks gained at the entrance examination and the Haslar course Surgeon Greig obtained the second place with 4,447.

***Royal Army Medical Corps*.**—At the recent examination for commissions in the R.A.M.C., sixty-nine candidates entered for 40 vacancies. The fifth place was gained by Mr. Archibald Craig Amy, M.B., Ch.B. Glasg., with 557 marks, 36 marks below the top score. Mr. Amy, who is a son of Dr. Amy, of Paisley, graduated in 1904, and subsequently held a resident appointment in Douglas, Isle of Man.

***Indian Medical Service*.**—At the examination held during the last week of July, there were forty-seven candidates for twenty vacancies. We note that Glasgow men have secured the first and seventh places. Mr. John Taylor, M.B., Ch.B., who heads the list with 3,879 marks out of a possible 5,100, graduated in 1905. He is a son of Mr. Taylor, dental surgeon, of Dennistoun. Mr. John Morison, M.B., Ch.B., who obtained seventh place with 3,369 marks, graduated with honours in 1902. He is an ex-president of the University Medico-Chirurgical Society, and subsequent to graduation was house surgeon in Sir William Macewen's wards in the Western Infirmary. After leaving the Infirmary he practised in Lugar, Ayrshire.

THE CLEANSING OF THE CITY: WHAT IT COSTS.—The estimates for the cleansing of Glasgow during the year which ended on 31st May were as follow:—Expenditure, £134,870; revenue, £36,565. The actual results show increases over estimates under each head—in expenditure by £5,984, in revenue by £3,390, and in net cost by £2,593. Steady progress has been made in abolishing ashpits and introducing

portable bins. Since this system was authorised in 1901, there had been 2,706 ashpits abolished and 23,663 portable bins substituted. The material dealt with amounted to 381,978 tons, of which 129,192 tons had been disposed of to farmers, while 95,274 tons had been cremated. Food unfit for consumption, comprising fruit, vegetables, tinned meat, fish, and eggs, and amounting to over 90 tons, was destroyed. The output of clinker from the destructors realised £2,176, an increase of £483 over the previous year, principally owing to the large quantities used in the formation of bacteria beds in connection with the sewage purification works; tins and galvanised iron realised £224; waste paper, £609; and bottles, £28. The total revenue derived from these sources amounted to £3,661, an increase of over £500. The cost of collecting and removing refuse amounted on the average to 2s. 11·47d. per ton, while the disposal of refuse cost 1s. 3·36d. The average cost of collecting and removing street sweepings was 7s. 2·07d. per ton. The quarries upon Ryding Estate have, as formerly, been a source of considerable revenue, the rents and lordships having amounted to £309. The value of the produce sold was £1,076, while the remainder, valued at £4,265, had been used in the stables of Corporation departments or on the farms. The increase of 1s. per week on the maximum rates paid to carters, street sweepers, washers, and labourers, practically placed the staff in the position of the most highly remunerated of any of the large cities in the United Kingdom. The daily average number of men employed was 1,522, as against 1,492 in the previous year. The stud at 31st May numbered 326, as against 322 on the corresponding date of 1905.

WORKMEN'S COMPENSATION INQUIRY.—The Home Secretary has appointed a Departmental Committee to inquire and report what diseases and injuries, other than injuries by accident, are due to industrial occupations, are distinguishable as such, and can properly be added to the diseases enumerated in the third schedule of the Workmen's Compensation Bill of 1906, so as to entitle to compensation persons who may be affected thereby. The members of the Committee are:—Mr. Herbert Samuel, M.P., Parliamentary Under-Secretary of State for the Home Department (chairman); Professor T. Clifford Allbutt, F.R.S., Regius Professor of Physic at Cambridge University; Mr. H. Cunynghame, C.B., Assistant Under-Secretary of State, Home Office; Dr. T. M. Legge, Medical Inspector of Factories.

THE EDUCATION OF DEFECTIVE CHILDREN.—The following circular has been issued by the Secretary of the Scotch Education Department to School Boards:—

“I am directed to call the attention of your Board to the Education of Defective Children (Scotland) Act, 1906, which has now received the Royal assent. According to the terms of this Act, a School Board is empowered to make special provision, either alone or in combination with other School Boards, for the education, medical inspection, and, where required, for the conveyance to and from school, of epileptic or crippled or defective children between 5 and 16 years of age, and to defray the cost thereof out of the school fund. Looking to the powers thus conferred upon School Boards, as well as to the provision already made in Article 20, 11, of the code for grants from the Parliamentary vote towards the expenses which may be incurred by School Boards and other managers in the instruction of defective and epileptic children, my Lords trust that your Board will carefully consider whether they should not now make special provision of the nature specified in the Act for any such children who may be resident within their district. They should, at all events, ascertain, in the first place, what children at present in schools under their charge fall under the definitions contained in the Act; and, secondly, ascertain similarly the number of such children within their district who are not in attendance at any school. The Board’s inquiry as to what children are to be regarded as ‘defective’ should be conducted through a medical practitioner. Boards who, after making this investigation, may resolve that it is desirable to make special provision for children in their district, would do well to make themselves acquainted with the working of schools of this kind already in existence. Among such schools are those under the principal educational authorities in England. Special provision has also been made by the Glasgow School Board in this direction for some years past. If the circumstances of the district are not such as, in the opinion of the Board, would make such special provision necessary, the Department would be glad to have, at all events, a statement as to the number of children who fall under the foregoing definitions, and what simpler measures the Board would propose with a view to giving effect to the desire of Parliament as indicated in the Act.”

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1905-1906.

MEETING X.—16TH FEBRUARY, 1906.

The Vice-President, DR. W. K. HUNTER, in the Chair.

I.—NOTES ON SURGICAL CASES.

BY DR. J. CRAWFORD RENTON.

1. *Laminectomy performed three years ago in a male patient suffering from Pott's disease.*

(a) J. M., æt 20, sent by Dr. M'Nicol, of Taynuilt, was admitted to the Western Infirmary on 11th July, 1902, suffering from paraplegia, with loss of sensation, retention of urine, knee-reflexes increased, ankle-clonus well marked. This was produced by a decided posterior curvature of the spine. (Photograph shown.) Extension of the spine by weights was tried for three months, and as no improvement followed this, laminectomy was performed, three of the spinous processes and laminæ being removed and the cord exposed. Sensation returned in a fortnight, and in a year he was able to walk, and had complete control of the bladder and rectum.

(b) The case of laryngotomy for papilloma of the larynx, although not able to be present, remains well after eighteen months. The operation was done by the method recommended by Mr. Butlin. I have pleasure in thanking Dr. Downie for his kind help with the operation.

2. *Osteomyelitis of tibia.*

J. D., æt 10, sent by Dr. Cowan, of Kirkintilloch, with acute osteomyelitis. Operation by trephining in three places; diaphysis shown and tibia reformed by grafts of bone; boy well. (Photographs shown.)

3. *Ballance's operation for chronic ear discharge.*

(a) A. C., adult male, sent by Dr. Armstrong and Dr. Cowan, of Kirkintilloch. History of discharge for several years from

the right ear. Operation on mastoid and grafting by Ballance's method; recovery. Hears watch at 10 inches.

(b) A. B., a girl of 14, was sent by Dr. M'Lelland, of Alexandria. History of discharge from right ear for three and a half years, and of paralysis of the right side of the face for three years. The photographs show the condition before and after operation. The operation recommended by Sir William Macewen and Mr. Ballance was carried out, and in two months after the operation the paralysis had completely disappeared and she was using the muscles of the right side of her face normally and hearing at 12 inches.

(c) Girl with acute mastoid and head symptoms; operated on as above, with recovery.

4. N. S., admitted 2nd February, 1905, with ununited fracture of the tibia. Scaffolding operation with bone grafts first tried, but not successful. Two inches of fibula removed and the raw surfaces of tibia and fibula united with silver wire. (Photographs shown before and after operation.) Patient quite well, with 2 inches of shortening, which is easily compensated for by cork inside his boot. The shortening is not sufficient to require an O'Connor extension boot.

5. Ruptured right kidney removed from young gentleman, æt 17, after accident at football. He is a patient of Dr. Haldane's, of Bridge-of-Allan, who kindly asked me to see him in consultation, and, assisted by Dr. Haldane, Dr. Eggeling, and Dr. John W. Renton, I removed the kidney, which was split in two. Patient progressed favourably.

6. Six hundred gall-stones removed from female patient, æt 50. She was sent to me by Dr. White, of Coatbridge, with a temperature of 103°, and suffering great pain, with a large swelling in the right hypochondrium. She has progressed satisfactorily.

7. *Dilatation of the stomach due to adhesions round pylorus.*

(a) Female, æt. 60, sent by Dr. Joss and Dr. Lumsden, of Denny. Weight previous to operation, 5 st. 6 lb. Dr. Carstairs Douglas examined stomach wash and found indications of stenosis at the pylorus. Operation showed the gall-bladder adherent to pylorus, kinking it. The attachment was separated, and she is now quite well, weighing 7½ st.

(b) Female adult, seen with Professor Stockman and

Dr. Adamson. Dilatation of stomach. Examination of test breakfast showed stenosis of pylorus. Weight previous to operation, $6\frac{1}{2}$ st. Exploration showed adhesions round pylorus, which were divided. Weight now, 8 st., and quite well. The value of exploring is thus illustrated.

8. *Malignant disease of rectum.*

When the middle portion of the rectum is affected, the ideal operation is Kraske's, which, as you know, is removal, with union of the divided ends of the bowel, and the patient has normal sphincter power.

(a) Female, æt. 35, sent by Dr. Munro Campbell, and seen in consultation with Sir Hector C. Cameron, who agreed in our advice that Kraske's operation should be performed. Patient quite well a year after operation.

(b) Male, æt. 53, sent by Dr. Stewart Campbell. Operation in two stages, as the disease was so extensive, in December, 1904. Small fistula left, but has gained a stone in weight, and is at business daily.

(c) Male, æt. 58, sent by Dr. Boag, of Wishaw. Operation, November, 1904; recovery, with anus normal and no fistula; gained a stone; seen in October. (Photograph shown.) Died in December of acute malignant disease in stomach.

Note the importance of early recognition of the disease as the main factor towards successful operation.

9. *Renal abscess, with and without calculi.*

(a) Female adult, sent by Dr. Lindley Carstairs, with pus in the urine and great frequency of micturition. Segregator showed pus coming from the right kidney, as also cystoscope; skiagraph showed shadow. Kidney incised and abscess found, without a stone. Patient well.

(b) Female adult, sent by Dr. Boag, of Wishaw, with pus in the urine and large swelling of right kidney. Operation; stone removed.

(c) Female adult, sent by Dr. Gemmill Thomson, with large renal swelling. Incision and drainage of abscess, without stone.

Tubercular deposits in the kidney, when they break down, are somewhat discouraging, as they are apt to spread to the bladder.

10. *Note on excision of Gasserian ganglion.*

(a) Female, æt. 35, seen with Dr. Watson, for neuralgia of ophthalmic division. After minor operations failed, Gasserian ganglion removed. Patient well.

(b) Man, æt. 77, sent by Dr. Langmuir, on whom we had previously operated by Thiersch's method two and a half years ago, when only the infraorbital was drawn out. He remained well for two and a half years, when Cushing's operation for removing the Gasserian ganglion was carried out, owing to return of the neuralgia. He died six weeks after from influenza.

11. *Three cases of ruptured gastric ulcer.*

(a) Female adult, sent by Dr. M'Rury, of Millport. Operation thirty hours after rupture. The ulcer was found anteriorly, and recovery took place after a severe attack of general absorption into the joints. In her case, as the peritonitis was general, the abdomen was washed out with saline solution, and drained by tubes in Douglas's pouch and the flanks.

(b) Male adult, seen with Dr. Adamson. Operation four hours after rupture; flushing out with saline solution and drainage as above; general absorption and pneumonia; gradual recovery.

(c) Female adult with small rupture; no extravasation; no flushing required; recovery.

Note.—In two cases lately, with very marked stomach symptoms suggestive of ruptured gastric ulcer, no rupture or stomach ulcer found on operation, but general peritonitis and gangrenous appendix discovered in both cases. The one, a strong young man, seen with Dr. Thomson, recovered; the other, a rather feeble lady, seen with Dr. Adamson, died. In general peritonitis with extravasation, are we to flush out the abdomen, or be content with drying out all the fluid? In diffuse peritonitis I always use saline flushing, but in local and pelvic cases I simply dry out and wash away all purulent discharge with saline solution, as one is afraid, by general washing, of infecting the peritoneal cavity higher up.

Dr. Parry found glass vaginal tubes useful for exploring, and, if pus was found, he strongly advocated flushing, unless the extravasation was very small. A small opening above the pubes was of use in flushing.

Dr. Alfred Young said that the omentum was sufficient protection in many cases, and good results were got without either flushing or the use of drainage-tubes. Each case, he thought, should be decided on its own merits. He considered that flushing the abdomen acted by diluting the poison.

Dr. Arch. Young said—So far as I can gather, the previous speakers have not properly appreciated the point on which

Dr. Renton specially desired a free expression of opinion from this Society. The question of "flushing" the peritoneum is not settled by a consideration of the question of drainage, or of the most appropriate situation in which the initial incision, as well as any counter-incisions, should be made. It is something more than that. Of course, all will admit the necessity for drainage where such is required by the conditions found. Obviously, also, any accumulations of pus or stomach contents, wherever present, must be separately and satisfactorily dealt with. But the subject is a larger one than is involved merely in such measures. I would direct your attention to that important work with which the late Professor von Mikulicz may be said to have crowned his already epoch-making labours and achievements in abdominal, and more particularly stomach, surgery, viz., that valuable investigation he made into the induction or increasing of immunity to septic infection, particularly with reference to the artificial raising of the powers of resistance of the peritoneum. About this work I gave, in a recent number of the *Glasgow Medical Journal*, a pretty full account in abstract, and, through the kindness of Mikulicz himself, I was able to illustrate the practical outcome, in the statistics of the Breslau surgical clinique, of the experimental work on which in his last years the great surgeon based all his abdominal operative technique. His experimental work was done chiefly with nucleinic acid, but he found that, by the use of copious quantities of sterile physiological saline solution, the same, or at least approximately similar, results could be attained. The end in view was, you are doubtless aware, the induction or increasing of an active leucocytosis, and whatever that may mean in actual elevation of the local and constitutional powers of resistance. Von Mikulicz summed up his remarkable results on this subject in his Cavendish lecture delivered in London in 1904, and, as I have said, acted in his clinique on the lines which the results of his experimental work suggested. Up to a few years ago Mikulicz was accustomed to avoid the use of solutions in his operative work. Every wound was made, and kept, as dry as possible. When, in the summer of 1899, I was privileged to follow his work in Breslau, this was the principle he acted upon. I hardly ever saw, even in abdominal operations, irrigation of a wound practised. His experimental investigations led him to entirely and radically remodel his technique in this respect, until during his last two years he came to employ sterile saline solution in the most lavish manner; in abdominal work, in particular, he wrought under a practically constant deluge of

saline. From what I have said you will see that Dr. Renton's question regarding peritoneal "flushing" has much more meaning and practical importance, when you consider this matter of encouraging, by the abundant use of saline solution, the reactive leucocytosis which Mikulicz sought to excite, or its equivalent, at anyrate, in increased local and systemic resistance. That, I understand, to be the most essential point which Dr. Renton meant to raise.

Dr. Rutherford was glad to hear that the general opinion was in favour of flushing rather than of swabbing with gauze. With reference to Dr. Arch. Young's remarks, he did not see any advantage in starting a leucocytosis in the many cases where there was already marked leucocytosis. In practice he advocated rather an abstention from flushing, especially in the case of a stomach perforation. With appendix cases, and where there was an effusion of purulent fluids, the position is quite different, and flushing is frequently called for in such cases. The power of *restitutio ad integrum* possessed by the peritoneum was very considerable, and we must thus remember that good results are not always due to complete flushing or swabbing of the peritoneum.

II.—LUDWIG'S ANGINA.

BY DR. CHARLES C. CUTHBERT.

Cases of Ludwig's angina are not by any means rare, but their occurrence is at least uncommon enough to cause most of them to be reported in the various journals. The condition is the result of a pyogenic infection of extraordinary virulence, occurring in the submaxillary region, and generally commencing in the cellular tissue, between the mylohyoid and geniohyoglossus muscles. The suppurative process may affect one on both sides of the neck, and takes place entirely under the deep layer of the cervical fascia, extending in conformity with the distribution and attachments of this layer.

The first accurate description of the condition was given by Ludwig¹ in 1836, and after him it has been named. Previous to that, however, a case was noted by an English surgeon, Dr. Kirkland,² under the name of "angina externa," and in 1809 another English surgeon, Dr. Wells,³ described "a case of

¹ *Würth. Correspond.-Blatt.*, B. vi, No. 4; Schmidt's *Jahrbücher*, 1837.

² Kirkland, *An Inquiry into the Present State of Medical Surgery*, London, 1786, vol. ii, p. 158.

³ Wells, *Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, 1809, vol. iii, p. 360.

extensive gangrene of the cellular membrane between the muscles and skin of the neck and chest," which seems to fall into the same category.

At the time when Ludwig first published his cases it appears to have been almost epidemic in Germany, and his article was followed by the publication of several cases by other medical men. Since that time the condition has been more or less recognised as a separate disease, although, no doubt, it does not deserve that position, but it is merely a suppurative condition which owes its peculiar characteristics to the conformation of the part in which it occurs. Thus its classification as a disease *per se* is distinctly artificial, but it seems even more so when one considers that Ludwig only included those cases where the primary lesion was so slight as to be almost negligible, and where the spread of the infection was by direct continuity and without marked involvement of the lymphatic glands. That is to say, he excluded such conditions as inflammatory œdema and pyogenic infection resulting from a cut-throat wound, or a sloughing condition of the fauces with glandular abscess in the neck.

In a typical case the origin of the illness is obscure. The predisposing cause is general debility, in some cases occurring after influenza or one of the exanthemata. The exciting cause is the presence of a pyogenic micro-organism in the cellular tissue of the neck. The micro-organism gains entrance through the mucous membrane of the mouth and pharynx, but in most instances it is impossible to tell the exact site of the original lesion. In my case the patient complained of a slight "sore throat," and out of 17 comparatively recent cases which have been recorded, in 3 the primary complaint was of toothache, in 1 a fish-bone had stuck in the pharynx, while in 13 the onset was described as spontaneous, which probably means that the lesion in the oro-pharynx was so small as to escape notice.

The micro-organisms in penetrating the mucous membrane of the mouth cause few symptoms, and it is only when they have reached the loose connective tissue surrounding the submaxillary and sublingual glands that they give rise to the signs and symptoms characteristic of the condition. The patient at first complains of a feeling of lassitude and chilliness with raised temperature. In three or four days a hard swelling makes its appearance under the ramus of the jaw on one or other side, and rapidly extends backwards to the angle of the jaw, downwards towards the clavicle, and round to the corresponding parts of the other side of the neck. The

swelling, which is generally extreme, tilting the chin upwards and the head backwards, is tense and brawny, with little reddening of the skin, and it is seldom that fluctuation can be made out. On examination of the inside of the mouth, which by this time can be opened with difficulty, a continuation of the swelling can be seen underneath the tongue, elevating the tip of the tongue to the hard palate and rendering it impossible for the patient to protrude the tongue from the mouth. This is generally accompanied by great discomfort in breathing and swallowing.

On making an incision into the affected area through the deep cervical fascia the connective tissue round the salivary glands and between the different planes of muscle is found to be sloughing, of a greyish-black colour, and infiltrated with very foul-smelling pus which stains gauze black. Although in the later stages definite collections of pus may be found, in the typical case there is rather a general oozing of pus from the surfaces of the incision than any localised abscess cavity.

The absence of enlargement of lymphatic glands is noteworthy, infection being principally by direct continuity and not by the lymphatic system.

The suppuration is limited in its extent by the dense layer of deep cervical fascia which is attached to the ramus of the jaw above and to the clavicle and sternum below, but it is frequently accompanied by marked œdema of the face and also of the upper part of the chest wall. Should the condition remain untreated and the patient not succumb to general septicæmia, the large abscess which ultimately forms may rupture, either into the pharynx or further forward at the junction of the tongue and the floor of the mouth, or into the external meatus.

Of the complications which may occur, pneumonia, septicæmia, and pyæmia are most to be dreaded. Dyspnœa frequently causes great distress, and is due in some cases to œdema of the glottis, in others to direct pressure on the trachea or vagus. Pressure on the jugular vein gives rise to symptoms of cerebral congestion, and in one case¹ disturbances of vision, and prominence and tension of the eyeball with inability to completely close the eyelids, was explained by alteration of pressure in the jugular vein. In one patient operated on by Mr. Ballance² thrombosis of the jugular vein was noted. Occasionally paresis of the facial muscles has occurred on one side of the face. The effects of pressure,

¹ Marshall, *Lancet*, 1879, vol. i, p. 217.

² Leggatt, *Lancet*, 1905, vol. i, p. 1719.

combined with the action of the toxins, caused the skin on the whole of one side of the neck to slough in one case (Häfer), and in the same case the parotid and submaxillary glands were gangrenous. In a *post-mortem* examination by Ludwig the periosteum of the lower jaw was found at one place to be detached and the bone bare and discoloured. As one would expect, abscess of the anterior mediastinum is not an uncommon complication.

According to Ludwig, in spite of his treatment, which consisted of fomentations, bloodletting, administration of mercury, &c., the result was invariably fatal. Leterrier,¹ in 1893, published 31 typical cases, of which only 13 recovered; of the remainder the majority died within a few days of the commencement of the disease, and the rest succumbed later from general sepsis. In later years, probably owing to more vigorous treatment, the results have been much better.

The present-day treatment consists in free incisions through the skin and deep cervical fascia of the part of the neck affected. It has been advised that the incision be made vertically in the middle line, between the lower jaw and the hyoid bone, in order to avoid injury to important structures, but, as in most cases the affection is unilateral in the early stages, this incision would not be applicable. Although recommended by some writers, it is inadvisable to make an incision in the mouth below the tongue on account of the difficulty in establishing drainage. Where there is mechanical interference with the breathing from œdema glottidis, Cheyne and Burghard² recommend intubation, but it is difficult to see how this can be accomplished owing to the patient's inability to open his mouth, and the obstruction caused by the elevated tongue. The disadvantage of tracheotomy is that it is almost impossible to prevent infection of the tracheotomy wound, but in some cases it is the only possible course to adopt. If the condition be due to a streptococcus invasion, antistreptococcus serum may be of some assistance, and, of course, suitable treatment must be resorted to for the various complications as they arise.

For the notes of this case, which I bring forward, I am indebted to Dr. A. M. McGregor, late house surgeon in the Western Infirmary.

A. S., aged 49, a traveller, was admitted to Ward XXIII of

¹ G. Leterrier, *Du Phlegmon Sublingual dit Angine de Ludwig*, Thèse de Paris, 1893.

² Cheyne and Burghard, *Manual of Surgical Treatment*.

the Western Infirmary on 10th June, 1905. Previous to this illness he had always enjoyed good health, and he was very temperate in his habits. On 3rd June he complained of slight "sore throat," with pain in the right ear, but there was no discharge from the ear. Two days later a swelling appeared externally just behind the angle of the lower jaw on the right side, and, on account of the rapid increase in this swelling, he was admitted to hospital on 10th June.

When admitted he appeared to be very ill. The chin was tilted upwards and the head backwards by the swelling, which was very marked, and extended below the chin from the angle of the jaw on one side to the corresponding point on the other side, and downwards to below the level of the cricoid cartilage. The swelling was hard and brawny, except at a point just to the left of the middle line, where a sensation of deep fluctuation was obtained. The face was swollen with œdema, and the mouth could only be opened about half an inch. A hard swelling could be made out in the floor of the mouth and pushing the tongue upwards. Swallowing of even liquid food was accomplished with difficulty, and there was a considerable degree of dyspnœa, from which the patient seemed to get some relief by resting in bed on his hands and knees. Nothing abnormal was made out in the lungs. The temperature was 100°, and the pulse was 102 per minute, and slightly intermittent. As there was a story of his having coughed up a cast of the trachea a few days previously, a swab was taken from the throat and examined for bacillus diphtheriæ, but with a negative result.

In order to make the necessary free incisions in the neck, chloroform was administered. The patient struggled during the administration, and then stopped breathing. As artificial respiration was of no avail, tracheotomy was performed as low down in the neck as possible. The wound was very deep on account of the œdema and infiltration of the parts, and, on introducing the tube into the trachea, at least half an ounce of foetid pus was coughed up, and finally respiration was re-established.

Free incisions were made into the brawny area, and a little pus was found, but all the cellular tissue surrounding the muscles and the salivary glands was in a black, sloughing condition. For some days the patient continued to cough up pus through the tracheotomy tube, which was removed on 16th June. A large number of sloughs were discharged from all the wounds in the neck, including the tracheotomy wound. The patient's general condition improved, and he was able to

breathe in comfort while lying on his back, and to swallow without difficulty. A parotid abscess, which developed on the left side, was opened, and another incision was made low down in the neck for drainage purposes. On 19th June there was severe hæmorrhage from all the wounds in the neck owing to ulceration into the transverse cervical vein. In order to control this, the large cavity in the neck was tightly packed with gauze, as a result of which within twenty-four hours the patient developed a severe attack of erysipelas of the face and scalp, but under suitable treatment this disappeared in a few days. The wounds in the neck healed rapidly by granulation, and he was dismissed cured on 11th July.

The points to which I would draw attention are—

1. The inadvisability of giving a general anæsthetic to a patient suffering from Ludwig's angina, as, owing to the patient's inability to open the mouth, it is impossible to say whether or not an abscess is pointing into the pharynx.

2. It was demonstrated at the time of operation, and for days afterwards, that a large quantity of pus had escaped into the trachea, and yet, although the chest was examined daily, no signs of pneumonia could be made out—in fact, there was hardly a râle to be heard in his chest from the beginning to the end of his illness.

3. Unfortunately in this case no examination was made of the pus, either by culture or otherwise, to demonstrate the nature of the micro-organism involved. In the literature of the subject it has always been taken for granted that it has been a streptococcus invasion, and this is probably so far correct. It was noted, however, by Ludwig, and occasionally since his time, that in a few of the cases there was a distinct formation of gas in the tissues. This suggests the possibility that, in at least some of these cases, we have to deal with the bacillus of malignant œdema, either alone or in combination with a streptococcus.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION, 1905-1906.

MEETING V.—12TH FEBRUARY, 1906.

The President, PROF. ROBERT MUIR, in the Chair.

I.—MICROSCOPICAL AND LANTERN DEMONSTRATION OF SPECIMENS
FROM A CASE OF KALA-AZAR IN A EUROPEAN.

BY DR. R. M. BUCHANAN.

Dr. Buchanan's paper will be published as an original article in a future issue of the *Journal*.

Professor Muir commented on the work which had been done in recent years in connection with the study of those forms of tropical disease, and to the fact that the case shown to the Society was the first one of kala-azar met with in this country. He did not consider the identity of the bodies met in kala-azar and the Delhi sore as yet established, and contrasted them with the condition seen in Madura foot and actinomycosis, and which were due to different species. He held that Rogers' observation was quite the accepted one, viz., that the Leishman-Donovan bodies were a stage in the cycle of a trypanosome.

Lieutenant Wells and *Dr. Carstairs Douglas* also took part in the discussion of the case.

II.—CASE OF CHORIO-EPITHELIOMA, WITH EXHIBITION OF
SPECIMENS AND MICROSCOPICAL AND LANTERN DEMON-
STRATION.

BY DR. J. K. KELLY AND DR. CHARLES WORKMAN.

[DR. KELLY.]

So far as I am aware, this is the first case of chorio-epithelioma that has been shown to this Society, and before relating the short clinical history I may be permitted to state in a few words the nature of this disease. It is a persistently cellular growth, i.e., it presents no tendency to the formation of any fibrous or other structure, such as we are prone to

regard as an advance upon a purely cellular form. The cells of which it is composed are derived from, and are in fact the same as, the cells which cover the chorionic villi of the ovum. These cells are found on the villus in two layers, and are of two essentially distinct kinds—a well-defined set forming the Langhan's layer (which in the villus lies next to the stroma), and a superficial set, forming the syncytium, which are very ill-defined and indeed may be regarded as consisting simply of nuclei lying in undifferentiated masses of protoplasm, and as having therefore not even reached the cell stage. On the villus these two sets of cellular elements maintain a constant relation to each other, but in chorio-epithelioma this relationship is lost, and the Langhan's cells and the nucleated syncytium are mixed up in all sorts of confused forms.

Such being the histological basis of this disease, we find that as in its structure it is a monstrous exaggeration of the epithelial covering of the chorionic villus, so in its function it exaggerates enormously one of the functions of this epithelium. These functions may be many, and do not come under discussion now, but one of them is to penetrate the uterine mucous membrane, so as to reach a place on which the ovum may settle, and at the same time to penetrate the uterine vessels and reach the blood supply needed for the growing embryo. It is this penetrating function that is the distinguishing mark of chorio-epithelioma. It is simply destructive. It forms no tissue itself, and it destroys the tissues with which it comes in contact. It especially gnaws through the walls of the blood-vessels, and, while thus causing local hæmorrhages, it at the same time reaches the blood-stream, and is carried away from its original site to distant parts of the body, where it exercises the same destructive action. This disease, therefore, tends almost inevitably towards a fatal issue, either directly from profuse hæmorrhage or indirectly from the effects of hæmorrhage in certain organs, such as the lungs or brain.

The case that Dr. Workman and I are bringing before you to-night is the second case I have seen. The former case was very carefully investigated by Dr. Teacher, and formed, I think, the starting-point of his study of chorio-epithelioma, the results of which he has since published in a thesis which, I may say in passing, does the highest credit to the Glasgow school.

The present case was that of Mrs. A., aged 25, admitted to Ward 30 of the Glasgow Royal Infirmary on 11th July, 1905. She had had four children, the last of whom was born eight

weeks before admission. Her labours had been easy, and the former puerperia apparently normal. Since the birth of the last child, however, she had profuse hæmorrhage every day, and there had been several attacks of rather severe hæmorrhage during the later months of pregnancy. She has had no pain, but feels very weak and ill. She was sent into the ward from the dispensary as an urgent case, with the vagina packed owing to profuse bleeding. Her manner on admission is very peculiar. She is drowsy and lethargic, and is rather incoherent and rambling in her statements. She is very thin and pale, and looks exceedingly ill and exhausted. The heart-sounds are pure, but the respiratory murmur is harsh, and there are loud râles posteriorly at the end of inspiration. The urine contains a slight quantity of albumen.

In the anterior vaginal wall are two nodules at different levels; the lower is smaller and harder to feel, the upper one feels cystic. At the left side of the vagina is an irregular tumour, projecting slightly above the surface and showing small, dark, cystic portions. There is some fulness in Douglas's pouch, and the left appendages are enlarged. The uterus is subinvolved. But she was too ill for any prolonged examination.

After admission there was very little hæmorrhage, but the general condition grew rapidly worse. The mental lethargy increased, and she had double vision and dull headache. She had two slight convulsive attacks, and after one of these on 23rd July (the twelfth day after admission) the face was drawn to the right side, and the right side of the body was paralysed. At this stage the temperature, which had been about normal, began to rise slightly. Gradually she became unconscious, and she died on the 28th.

She was in hospital a year previously with ulceration of the bladder. This was curetted and the scrapings examined for tubercle, with negative result. At the *post-mortem* examination, the mucous membrane of the bladder showed no evidence of the former disease.

She was attended at her confinement by two students from the Maternity Hospital, but they did not observe anything unusual in the labour, and the placenta seemed normal. Their attention was called to a small piece apparently of placental tissue which was expelled with some bleeding on the second day of the puerperium, but the bleeding was regarded as due to part of the placenta having been retained.

The clinical course of this case is quite characteristic of chorio-epithelioma. Dating from a pregnancy, and in this

case showing the peculiarity of manifesting itself during the continuance of the pregnancy, it was marked by severe hæmorrhages, probably from both uterus and vagina—by the formation of vaginal tumours—by secondary involvement of distant organs, which it could only reach by way of the blood, and by its rapidly fatal result.

[DR. WORKMAN.]

Post-mortem examination.—*Summary:* Syncytium malignum; tumour in ovaries, uterus, and vagina; secondary nodules in heart-wall, spleen, lungs, brain, and left kidney; enormous hæmorrhage into the abdomen.

External appearances.—A much emaciated body, skin very pallid, *post-mortem* rigidity present.

Thorax.—The lungs are a little congested, and are very nodular from the presence of numerous small secondary tumours, which are most evident immediately beneath the pleura. The heart is rather small and somewhat atrophied. The aortic and pulmonary curtains are competent, and these and the other valves appear healthy. The muscular tissue of the heart-wall is rather pale and soft. Near the apex of the heart there is a small vascular nodule, probably a secondary tumour.

Abdomen.—The liver is about normal, and slightly fatty; the gall-bladder contains fluid bile; and both liver and gall-bladder show no signs of any tumour tissue. The spleen has one small nodule in its substance, but appears otherwise healthy. The kidneys show a number of small embolic necroses, probably due to tumour tissue blocking the small arteries, and there is one distinct secondary nodule in the cortex of the left kidney.

The abdomen contains an enormous quantity of extravasated blood and clot.

Both ovaries are the seat of tumour formation, partly multilocular cysts and partly solid. The uterus is laid open from behind, and shows a small nodule in the anterior wall, to right of the middle line and protruding into the fundus. Another tumour mass surrounds the opening of the urethra into the vagina.

Brain.—A tumour mass is found in the right frontal lobe, and another in the left occipital lobe. All the tumours throughout the body show a very hæmorrhagic character.

This case of a form of tumour to which the names "deciduoma," chorio-epithelioma, and syncytium malignum

have been given is remarkable in that the nodule in the wall of the uterus, which might be looked upon as the primary disease, is of comparatively small size. It is of interest also that the liver was entirely free from tumour formation, whilst almost all the other organs showed secondary nodules.

When we consider the extremely irregular shape of the tumour-cells, and the various forms and staining characters of their nuclei, the cells have a close resemblance to those of a soft cancer, but in their arrangement, and especially in their remarkably close relation to the blood-stream, they show the characters, not of a cancer, but of a sarcoma or of an angio-sarcoma. We see that there are often capillaries running between the cells of the tumour, without any appearance of an endothelium separating the cells from the blood-stream.

From this character of the tumour, and from the fact that the cells are so extremely unlike those of any adult tissue, I would be inclined to classify such tumours with the endotheliomata, and it may be that in this case the primary tumour originated, not in the uterus, but in one of the ovaries, where the tumour masses are much larger. Professor Ritchie, of Oxford, in 1903 described a case of this kind which originated in a dermoid cyst of the mediastinum in a man of 24 years of age. In this case Dr. Ritchie also notes the extremely close relation of the cells to the blood-stream, so that he was at first inclined to group the tumour with the angio-sarcomata.

From the fact that no nodules occurred in the liver, it seems to me probable that the metastasis did not extend at all to the portal vein, but was carried entirely by the systemic veins.

Dr. John H. Teacher agreed with Dr. Kelly and Dr. Workman that the case was one of chorion-epithelioma (or as Dr. Workman preferred to name it, syncytioma malignum). It was particularly interesting in several respects. It represented the most malignant variety of that growth, and he was inclined to think it probable that the malignant process had commenced during the pregnancy, in this respect resembling the extremely rapid cases described by Schlagenhauser and Williams. Another point of interest is the fact that the pregnancy appeared to have been perfectly normal and carried to full time, which is in harmony with what has been observed—that when the disease follows a normal pregnancy, it is frequently of extreme malignancy. The very small size of the uterine tumour, compared with the large size and wide distribution of the secondary growths, was very remarkable, but Dr. Teacher nevertheless regarded the uterine tumour as

most probably the primary. Such disproportion between the primary and the secondary tumours is by no means unique. Although the ovarian tumours were much larger than that within the uterus, it appeared to him quite likely that they were of later origin; their size appeared to be for the most part the result of hæmorrhage—possibly, indeed, hæmorrhage into pre-existent cysts. The occurrence of tumours in the vagina, which is the commonest seat of secondary nodules, also favoured the idea that the uterine tumour was the primary. Those cases in which the uterus is found free from tumour, and a tumour in the vagina is supposed to be the primary, are also very suggestive. The occurrence of secondary tumours in the brain is an unusual and particularly interesting feature of the case in question. This condition has been observed some eight or nine times, and in several of the cases (*e.g.*, that of Bruce and Inglis, and two cases of Marchand), the clinical features were those of apoplexy, the true nature and cause of the cerebral hæmorrhage being revealed only by the subsequent investigation. Dr. Teacher thought it very unlikely that this could be a tumour of the ovary similar to the chorion-epithelioma-like tumours of the testis or mediastinal dermoid (case of Ritchie). Dr. Teacher also dissented from Dr. Workman's view that these tumours might be endotheliomata. He regarded their origin from the chorionic epithelium, and the epiblastic nature of that epithelium, as completely proved.

III.—CASE OF TERATOMA OF THE TONGUE.

BY DR. JAS. H. NICOLL AND DR. JOHN H. TEACHER.

The tumour was removed when the infant was 1 week old, operation being necessary on account of the difficulty in feeding the child. The photographs show the appearances of different views of the tumour, which was a skin-covered lobulated mass growing out of the right half of tongue and propping the infant's mouth wide open (Figs. 1 and 2).

The interest of the case lies in the identification of the tissues and organs of a fœtus in the tumour mass, proving that the tumour is, as believed at the time of the operation, a teratoma.

Report by Dr. Teacher.—The histological investigation bore out the opinion expressed by Dr. Nicoll that the tumour was a teratoma, by which he meant that it was an attached twin of the living child.

The tumour is of very irregular shape, having a globular middle portion, from which projects on one side the broad base of attachment to its host, and at either end a globular mass of smaller size, with constricted neck (so marked in the one case as to suggest a real neck), and measuring roughly 9 cm. by 6 cm. by 5 cm. There are several smaller prominences from different aspects of the tumour, one of which has a papillated surface, while the others are globular and smooth.

The mass is covered for the most part with soft downy skin; the rest of the integument has a parchment-like character. The base at which it was attached to the tongue of its host



FIG. 1.

Side view of tumour, showing left half of the tongue unaffected.



FIG. 2.

Front view, showing the cleft palate which co-existed.

is of nearly circular outline, measuring 3 cm. in diameter. It is composed for the most part of voluntary muscle, and its margins have the characters of mucous membrane. The tumour was divided lengthwise and vertically to the base, which was, as nearly as possible, divided equally. The main mass and the projection to the base are found to be made up of a congeries of cysts of various sizes. Two of the rounded projections near the base contain rods of cartilage, suggesting the possibility that they might represent limb-buds.

Sections were made which include practically the whole cut surface of the middle mass and base, and portions of several of the projections. The papillomatous one consists of adipose

tissue and much firm fibrous tissue, with considerable warty epidermal development of its surface. The others are composed of adipose tissue and cartilage covered with soft downy skin. The large globular ends appear to consist entirely of adipose tissue and skin. These tissues have the characters of those of the normal full-time foetus.

The central mass containing the cysts shows a certain amount of adipose tissue under the skin, but for the most part consists of denser connective tissue, in which the cysts are embedded. The latter are of three kinds—(a) epidermal, related to sebaceous glands and hair roots; (b) cysts having the structure of some part of the alimentary tract; and (c) cysts having a lining membrane with the characters of that of the respiratory



FIG. 3.

The tumour in section. The large empty cysts appear to be derivatives of the respiratory tract (compare Fig. 6); those filled with glistening contents (mucus) represent the stomach and intestines. In the projection to the left a rod of cartilage is seen, and the clear area at the opposite point of the section contained the tooth-germ. Asterisk indicates the base of attachment.

passages. The first have the usual lining membrane and contents of their kind; the others require further description. Close to the base are two small cysts, with thick velvety lining membrane which shows the structure of the foetal stomach. Further into the mass the smaller cysts have a lining membrane identical with the great intestine at the corresponding stage of development, while one of the larger cysts shows a thin epithelial lining of atrophied appearance, which can be made out in places to have been of the same nature. These cysts have all a double coat of involuntary muscular tissue. Their contents were thick mucus, which was coagulated into a fairly stiff jelly by the formalin. The other large cysts were distinguished from the preceding by having thin watery contents, which flowed away when they were laid open. They

differed also in histological structure, being lined with columnar ciliated epithelium of the type characteristic of the respiratory passages. This showed also in places transitions to stratified squamous epithelium, just as in the normal respiratory tract. A few small cysts also showed a mixed character, resembling the great intestine at one end and passing over gradually to the respiratory character at the other.

At the far side of the tumour a soft gelatinous mass with a firm fibrous capsule was noticed, in which was found a hard

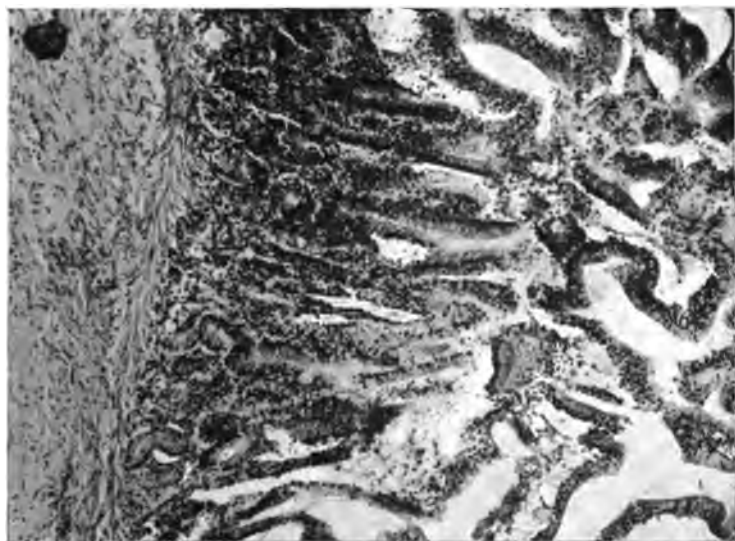


FIG. 4.

Wall of a cyst having the characters of the fetal stomach. To the left are seen the ends of the gastric glands resting on the muscularis mucosae, to the right the wide open mouths, their irregular appearance being due to the section having passed close to the margin of the cyst ($\times 100$).

mass which proved to be the dentine cap of a tooth. Microscopic examination confirmed the discovery of tooth germ, and also revealed a mass of salivary gland close beside it.

The other tissue elements present are some nodules of lymphatic gland tissue, blood-vessels, voluntary muscle composing the base and extending some distance from it, and near the base some nerves of considerable size. Nerves of small size and some voluntary muscle were also found well to the distal side of the mass. No other nervous tissue was seen in any of the sections.

The nature of the tumour, therefore, is clear; it is a teratoma, which term implies that it is a twin of the infant to which it was attached. An unbroken chain of forms has been demonstrated from twins, through double monstrosities, down to "mixed tumours" of much less complex structure than the present example. Two infants of the same sex enclosed in a common amnion, having separate umbilical cords attached either to a common placenta or to a double placenta, in which there is frequently some anastomosis between the vessels of the two foetuses, may be taken as the perfect result of uniovular

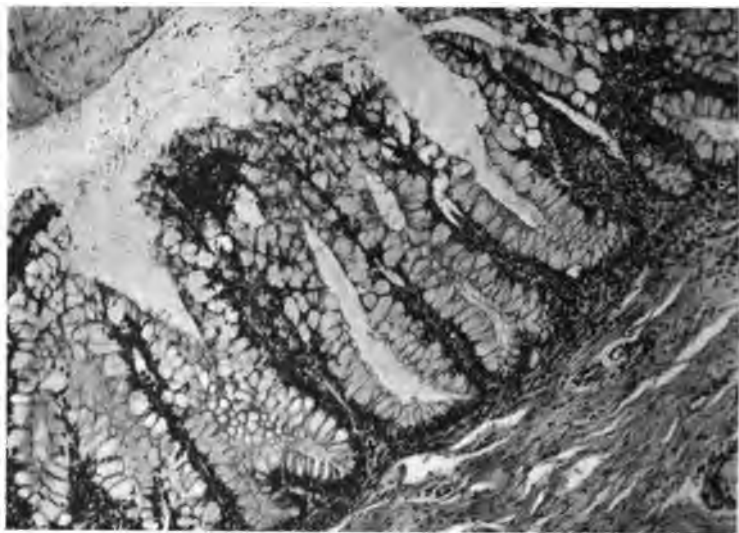


FIG. 5.

Mucous membrane of a cyst having the structure of that of the foetal great intestine ($\times 100$).

twin conception. The ovum which gives rise to this result has obviously contained two centres of development, although the manner in which these have arisen is by no means certain. As ova containing double nuclei are known to occur in the ovary it appears possible that the condition was existent in the ovum prior to fertilisation; but there are also observations which indicate that the two centres might arise subsequent to fertilisation, viz., at the period of the first division.¹ The

¹ Edmund B. Wilson, *The Cell in Inheritance and Development*, second edition, 1900 (especially Chapter IX).

occurrence of double monstrosity instead of twins is explained by the incomplete separation of the two centres, and in proportion to the extent to which the two groups of cells constituting the early embryo overlap there will be more or less complete union with suppression of the adjacent parts and the production of a double monstrosity. This is very well explained and figured by Dareste in the case of monstrosities of the chick.¹ In some cases the development of the two



FIG. 6.

Wall of a narrow tubule, associated with the large cysts with watery contents, showing the lining of columnar ciliated epithelium of the type found in the respiratory passages, with transition to stratified squamous epithelium near the exterior of the tumour.

individuals may be equal; in other cases that of the one greatly exceeds that of the other, and a double monstrosity, in which the one is parasitic on the other, results. Where the suppression of the one is least marked there may be little more than a difference in size; where it is greater, the parasite may be represented only by a head or a pair of limbs, or, in the most extreme case, by an amorphous mass, which is either included within the body of the fully developed fœtus or

¹ C. Dareste, *Production artificielle des Monstrosities*, Paris, 1891 (beautiful illustrations).

attached to some part of its exterior. The nature of these masses becomes plain when we consider another form of parasitism, viz., that of the acardiac monstrosity proper, which is a more or less deformed foetus, with an umbilical cord of its own accompanying a well-formed infant. In this case, the parasite, as its name implies, has no heart, but depends for its circulation on the heart of its well-formed twin and an anastomosis in the placenta. The most degraded form of this monstrosity, the foetus amorphus, is similar to the present tumour, the only difference being the nature of the connection between the two. In one case there has been a large degree of independence, the amorphous foetus being a separate twin, with a loose connection through the placenta; in the other, it is attached to the surface of its fellow, from the body of which it directly derives its blood-supply.

Perhaps the commonest examples of this condition are the sacral teratoma, and the acardiacus epignathus, or teratoma attached to the jaws or base of the skull through the mouth, of which various forms are figured by Ahlfeld¹ and other teratologists. The attachment of the parasite to the tongue is very unusual, but in other respects this case is closely related to, and may be classified with, the acardiacus epignathus.

REVIEWS.

Handbook of Surgery. By GEORGE BURNSIDE BUCHANAN, B.A., M.B. Edinburgh: John Currie. 1906.

THIS *Handbook* is designed for those who wish, before presenting themselves for examination, to revise the surgery they have already learnt. Its appearance is a response to "frequent inquiries for something of the kind" from the above-mentioned class of readers.

From the author's preface it will be seen that his aim has not been a high one; further, he frankly admits the great part which compilation has played in the genesis of the work. He has confined himself, in the question of treatment, to the "indications of the general principles to be adopted." Keeping the above in view, we do not look for a profound treatise, but rather for an epitome of the subject.

¹ Ahlfeld, *Missbildungen des Menschen*, 1880.

The matter is arranged in three sections—General Surgery, Surgery of Special Tissues, and Injuries and Diseases of Special Regions, and consists of some five hundred pages of text. There are no illustrations. While the author has written a really very good account of the subject, we confess that we expected in some parts more fulness than he has seen fit to give us. We would draw his attention to a curious mistake in the description of Syme's method of treating urethral stricture by external incision.

We are just afraid that the process of condensation has been carried rather too far; but we believe that the *Handbook* will find many readers among the class for whom it is intended.

The Operative Treatment of Fractures. By W. ARBUTHNOT LANE, M.S., F.R.C.S. London: The Medical Publishing Co., Limited. 1905.

IN this beautifully printed and well illustrated *brochure* the author has confined himself to dealing with general principles, and to the illustration of his views by a number of examples.

As an introduction he refers to investigations, which he began in 1885, on changes in the skeleton resulting from habitual assumption of attitudes of activity or of rest. These changes are exemplified in the vertebræ, and other bones and joints of men employed in various occupations, and they consist, mainly, in alterations in shape by formation of bony projections at the periphery of joints. Changes due to prolonged and to sudden pressure or strain are also alluded to. These are chiefly in the form of absorption of articular cartilages. Similar changes are described as the result of fractures in which the fragments have not been restored to their normal relationship. The author states that the degree of restoration to the normal form varies inversely with the age of the patient.

The author next criticises the present-day teaching of even surgeons of repute, and gives it as his opinion that it is impossible to put displaced fragments into accurate apposition without operative interference.

He then takes up in detail fractures of the upper and lower extremities. Of the latter, Pott's fracture is gone into at considerable length. He rails at "some results of the non-operative treatment of fracture of the femur"; deals out advice to anatomists; and refers to the average medical

student's attitude of mind in a strain which is not likely to attract very serious attention.

The introductory matter is interesting, but we submit that it might quite well have been given in a much more condensed form. With regard to the subject of the title, we do not believe that all cases of fracture may be treated satisfactorily in any one way, and we are perfectly well aware that, if performed aseptically, the operations which Mr. Lane advocates so strenuously will in some cases be called for. We have seen some poor results of non-operative treatment; but surely we are not alone in over and over again experiencing results by that treatment which leave nothing to be desired? It is well that Mr. Lane should direct attention to the method which he advocates. We do not, however, see how it will ever become universal as the treatment for fractures.

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology, compiled for the New Sydenham Society (a continuation of the "Atlas of Pathology") chiefly from Original Sources. Fasciculus XXIV, being XVI of The Clinical Atlas: Bromide Eruptions, Plates CLIII to CLV; Lichen Urticatus, Plates CLVI to CLVIII bis; Pemphigus Vegetans, Plate CLIX. London: The New Sydenham Society. 1905.

THE first plate in the present fasciculus shews a potassium bromide eruption on the face of a young child; it is characterised by vesication and coarse crust-formation. The next plate shews the arm and leg of the same child; the patches or crusts tend to enlarge in a striking way by the development of rings of vesicles at their margins. The following illustration depicts the face and leg of another child in whom one of the sores on the leg showed a prominent mass of granulation tissue.

The next four plates are illustrations of lichen urticatus—(1) the common form in its early stage; (2) with persisting papules and varicelliform lesions; (3) the varicelliform phase, and (4) with secondary impetigo. These portraits, with their descriptive letterpress, are due to Dr. Colcott Fox, who also furnishes some general remarks on the disease.

The last plate shews a case of pemphigus vegetans which began apparently with a sore mouth, and which, after repeated cures and relapses, ultimately led to death by exhaustion

about ten years after the first onset. This is followed by some important remarks by Mr. Hutchinson on the pemphigus group of maladies; and also by a series of reasons adduced by the same distinguished writer for believing that the lesions depicted under the head of lichen urticatus are really due to the bites of insects.

We cannot speak too highly of the great value and importance of this *Atlas*, for the production of which the New Sydenham Society deserves the highest praise. We are glad to note that the committee in charge includes not only representatives of British medicine and surgery, but also Dr. Gilchrist, of Baltimore, and Dr. Unna, of Hamburg.

Methods of Morbid Histology and Clinical Pathology. By J. WALKER HALL, M.D., and G. HERXHEIMER, M.D. Edinburgh and London: William Green & Sons. 1905.

THIS volume is designed to meet the requirements of students and pathologists working in hospitals and institutes, and, we consider, attains its object thoroughly. The various methods of examining, fixing, hardening, decalcifying, imbedding, sectioning, clearing, mounting, and staining are discussed at length in individual chapters. Then follow the methods for staining special cell and tissue structures, and special tissues and organs. Chapters, too, are devoted to the methods of examining bacteria, moulds, other fungi, and animal parasites. A short chapter deals with clinical microscopy. The work is rounded off with two valuable indices—one of authors and one of subjects. We confidently recommend this volume to laboratory workers.

Materia Medica and Therapeutics: an Introduction to the Rational Treatment of Disease. New and Enlarged Edition. By J. MITCHELL BRUCE, M.A., LL.D., M.D. London: Cassell & Company, Limited. 1905.

FEW books are better known to the student-world than Bruce's *Materia Medica and Therapeutics*, and fewer still are so deservedly popular. In the present edition the work has been subjected to thorough revision, and brought up to the level of our latest knowledge. An entirely new part has been added, which contains an account of the materia medica and therapeutics of the drugs in the Indian and Colonial Addendum to

the *British Pharmacopœia*. A very considerable improvement, too, has been effected by the introduction of greater detail respecting the chemical and pharmaceutical relations of the individual drugs. We know no better book for the student, and few make such agreeable and rational reading to the practitioner.

Hygiene and Public Health. By B. ARTHUR WHITELEGGE, C.B., M.D., and GEORGE NEWMAN, M.D., D.P.H. New Revised Edition. London: Cassell & Co., Limited. 1904.

THIS manual, so long associated with the name of Dr. Whitelegge, has had a prosperous career, and the present edition, which has been revised, enlarged, and in some parts re-written, bids fair to sustain its popularity.

Like the former editions, the present covers a large area of ground, and deals with many subjects in the course of its 620 pages of text. The object of the authors, as expressed in the introduction, "is to summarise the more important practical applications of a wide range of sciences in preventive medicine, and especially in the work of medical officers of health, under present conditions. . . . And where competent authorities differ in opinion or practice, to give prominence to official views generally accepted rather than to those of individuals." The range of subjects considered within the space of the book has compelled much—we had almost said, too, much—compression in writing; at the same time, a huge amount of valuable information has been digested into relatively little bulk. The subject of Meteorology, for example, fills only 18 pages of print, and that of Air, divorced from Ventilation, which is discussed in another part of the book, is dismissed in 14 pages; and several other large subjects have been similarly treated on the plan of severe condensation. For an elementary manual, which this professes to be, it is questionable whether such compendiousness is commendable for the student who is entering upon the study of the subject. That view, however, seems to be negatived in this case by the past success of the book.

Under the heading of "Removal of Refuse," we find grouped together the following subjects, viz., house-drainage, traps, water-closets, the midden system, pail closets, ash closets, removal of ashes and trade refuse, destructors, sewers and sewerage, and disposal of and methods of purifying sewage. Practically nothing, however, has been said to inform the student regarding what, in practice, is meant by scavenging.

If we look up the word *scavenging* in the index, for example, we get no fewer than six references, the first being to p. 249, in which there is no reference at all to scavenging; but in the preceding page there are two references, one in which it is said of the pail system that "a scavenging staff must in any circumstances be maintained for the removal of dry refuse," and the other, dealing with the removal of ashes from receptacles, that they should be "emptied at short and regular intervals by the scavengers." The other five references indicate the statute law of scavenging as contained in the law of England and London, and in bye-laws. We believe it would be a far better plan to deal separately with the water-carriage system of liquid refuse and the removal of dry and solid refuse.

In the short chapter of 8 pages devoted to animal parasites, mere notice is given to the sporozoa, and we have to look for anything like a connected life-history of a typical disease-producing protozoön to the heading "Malaria." The subject of clothing finds no place in this manual, if we except a note in small print on p. 314, under the heading of "Steam Disinfection," in which some information is given respecting the microscopic and chemical characters of wool, silk, cotton, and linen. The chapter on "Disinfection" is well written and practical, although we can see no good reason for denominating as *fumigation* what is generally termed aërial disinfection, more especially since the same word is applied to the burning of brown paper and green sticks, which certainly generates smoke.

The authors seem to have accepted as fully proved the doctrine of the aërial convection of small-pox. On p. 333 they say—"These and other careful investigations leave little room for doubt that under favourable conditions small-pox can be conveyed through the air, and for considerable distances." It would be more than satisfactory to those engaged in the public health service, if facts connected with small-pox hospitals and surrounding disposition of the disease would lend themselves to unmistakable proof of that statement, instead of being susceptible to other explanations. For example, the epidemic of Warrington is cited as a case in proof of the doctrine, but it must not be forgotten that one investigator, who investigated the facts for the Small-pox Commission, reached quite another conclusion. In respect, too, of the Sheffield outbreak, we are glad to see the authors say frankly that "the possibility of personal convection could not be entirely excluded." Niven could not come to the conclusion that aërial convection played any part in the

Oldham epidemic of 1893, and it certainly cannot be proved of the Glasgow epidemic of 1900-01. Further, if it be held to be true of the Orsett Union epidemic, then it will be impossible hereafter for many local authorities to secure sufficient space for their hospital sites; for in the Orsett case it was alleged that the contagium was carried for over three miles. If, however, it is to be taught that such aërial convection is proved, surely the student ought to be informed what are the "favourable conditions" under which it prevails or is likely to prevail. Our authors do not supply any information on that score; and so far as we know the conditions, they cannot, as yet, be formulated.

The chapter on "Specific Diseases" is one of the best written in the book. On p. 446 we are informed that "in Norway, leper asylums were established in 1856, and the number of lepers is believed to have steadily declined. The isolation in these asylums is not rigid." Having ourselves during the past summer visited some of the leper hospitals in that country, we are able to say, on the authority of Dr. Hansen, that since the establishment of these hospitals the prevalence of leprosy has declined 50 per cent, and that rigid isolation, as is practised, has been the only available remedy.

Public health law and vital statistics and statistical methods have been fully and lucidly expounded.

While we have felt it right to point out the foregoing, we are bound, at the same time, to express our high sense of the value of the work. It will be found of great value and usefulness to the student, and to serve well the purpose for which it has been written.

Le Livre de la Sage-femme et de la Garde, suivi de quelques mots sur le Traitement du Cancer de l'Utérus. [*The Midwife and Nurse's Book, followed by some remarks on the Treatment of Cancer of the Uterus.*] Par DR. R. DE SEIGNEUX. Genève: Henry Kundig. 1905.

THIS is not a handbook of midwifery, but rather a collection of the more important rules regarding the management of pregnancy, labour, and the puerperium. Nothing is inserted beyond what is absolutely necessary for a midwife to know, and explicit directions are given as to the kind of cases in which medical assistance is required. Due stress is laid upon aësis and abdominal examination.

The book includes also a short account of cancer of the uterus and its treatment. The midwife or nurse is the natural

confidant of the patient, and in many cases becomes acquainted with certain symptoms prior even to the medical attendant. Hence the importance to her of the knowledge that uterine cancer can be cured in the early stage. Accordingly, the author, after detailing the early symptoms of the disease, points out the necessity of her urging every patient who complains of these symptoms to submit without delay to a vaginal examination by a gynæcologist. If a translation of this article were sent to every medical practitioner, midwife, and nurse in Britain, the result would be a speedy lowering of the mortality from this dreadful disease.

Die Allgemeine Pathologie: a System and Text-book of Pathology for Graduates and Students of Medicine. By PROFESSOR OTTO LUBARSCH. Vol. I, Part 1. Wiesbaden: J. F. Bergmann. 1905.

THIS work, as explained in the preface, aims at bringing together all the assured facts in the domain of pathology which we have gained up to date, and at the same time giving an orderly exposition of principles and theories (while avoiding giving undue weight to any one theory—cellular or humoral) which will serve as a thread to guide the reader through this labyrinth of knowledge. It aims, further, at treating the subject in such a manner that it shall be useful not only to the pathologist, but also to the physician and student. For this purpose the author does not confine himself to general pathology and pathological anatomy, but also deals with physiology in relation to pathology and the application of pathology in its widest sense to practical medicine. To facilitate reference, therefore, the table of contents is very comprehensive and minute in detail.

This volume opens with the definition of disease and a discussion of the various theories of pathology and methods of investigation. Some 50 pages are devoted to the biology and pathology of the individual cell. The author then proceeds with the general pathological morphology and physiology of the organism, and the remainder of the volume (some 250 pages) is devoted to the circulatory system, following very much the usual lines.

We fancy that this book would be rather too elaborate for reading by the student, but as a work to be consulted by those of wider experience and greater requirements it appears to us to be excellent.

Those who are acquainted with that admirable series of volumes, "Die Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie," of Lubarsch and Ostertag, will expect the work to be encyclopædic in its wealth of details, and at the same time well arranged and with the facts well correlated; and they will not be disappointed. The work ought to find a place in every medical library, and we can also recommend it to all who are teaching or conducting research in pathology.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By JOHN G. GRAY, M.D., F.F.P.S.G.

Periodic Vomiting with Acetonæmia in Children. By Dickenson (*The British Journal of Children's Diseases*, March, 1906).—In a paper with the above title, Dr. Vincent Dickenson gives a description of the condition, and reviews at some length the different theories as to its etiology. The nomenclature of the disease has been exceedingly varied—gastric neurosis, persistent vomiting, periodic vomiting, cyclical vomiting, and vomiting with acetonæmia being all synonyms for the one syndrome.

The condition sets in suddenly with vomiting in a child apparently in good health, and without any evident cause. The child is usually of a nervous or arthritic diathesis. The vomiting is sudden, without any premonitory nausea, and the vomit is usually composed of a watery fluid; but it may be, and especially towards the end of an attack, bilious or fecal. Attacks of this kind recur several times during a day for a matter of some days, when they disappear as suddenly as they came. After a variable period of good health, the vomiting returns, and it may show this cyclical or periodic tendency until the child reaches puberty. Associated with the vomiting is severe prostration, the child lying motionless in bed. There is no abdominal pain, and the bowels as a rule are constipated. The temperature may be slightly elevated, and the pulse accelerated. The breath has a distinct odour of acetone; the urine is scanty and always contains acetone and frequently also indican. Though acetone is always present in the urine, it may not make its appearance till late in the attack; consequently it is advisable to examine the urine during the entire illness, or this important sign may be missed.

As the disease, in the vast majority of instances, terminates in recovery, the pathological anatomy is not known, but nevertheless there are many theories regarding its causation. Most authors consider it a manifestation of disturbed metabolism. Comby believes that it is evidence of an arthritic diathesis, as it is similar to megrim, and as it frequently occurs in the children of gouty parents. Snow and Whitney think it due to a gastric neurosis, intensified by hyperacidity, while Edsall considers it the result of an acid intoxication, such as occurs in "diabetes mellitus." This last author has found that the blood is acid in reaction during an attack, and somewhat in confirmation of his theory is the success resulting from the treatment of the condition by large doses of diffusible alkalis. By Griffith it is supposed to be of the nature of

an auto-intoxication ; Rotch in one instance found an excess of albumenoids in the milk of the mother of a breast-fed infant suffering from periodic vomiting, and that with the diminution of the milk proteids the condition abated. Mery lays the blame on constipation ; Ricardière attributes the attacks to insufficient function of the liver, and quotes in support of his theory various hepatic symptoms, as bilious vomiting, jaundice, urticaria, enlargement and tenderness of the liver, which he has noted in different cases. According to Ricardière, the acetonuria is evidence of hepatic derangement, in that the liver no longer prevents the formation of acetone. Hutinel, who also believes in the hepatic theory, does not specify any particular toxin, but considers that many toxic substances may be produced, and, reaching the circulation, cause a mere rise in temperature, urticaria, nervous phenomena, or a typical attack of periodic vomiting.

Perhaps the only non-toxic theory is that propounded by Broca, who considers this syndrome a manifestation of chronic recurrent appendicitis. This author has reported five cases in which complete cessation of the attacks supervened on appendicectomy. Marfan and Ricardière, however, mention cases in which the condition persisted after complete ablation of the appendix.

The diagnosis of the condition is as a rule easy. Tuberculous meningitis and repeated bilious vomiting are the only two maladies which may give rise to difficulty, but a careful and complete survey of the case will eliminate these two diseases. When death occurs, which, as previously mentioned, is exceedingly rare, it is usually due to some complication, the most frequent of which is nephritis.

The treatment, of course, varies as the ideas of the etiology. The only definite line of treatment is that of Edsall, who considers it an acid intoxication. He gives a diffusible alkali (as sodii bicarb.) in large doses, 15 gra. every two hours, or 3 oz. in the twenty-four hours. Other observers have had good results with this method.—L. F.

The Origin and Nature of the Blood Plates. By James Homer Wright, M.D. (*Boston Medical and Surgical Journal*, 7th June, 1906).—In this paper is set forth the theory that the blood plates are derived from the giant cells in the marrow and spleen, and in illustration of their development several microphotographs—unfortunately, however, of very little service—are appended. The question was specially worked out in the case of the cat, the blood plates being unusually large in this animal, and the method of staining was a modification by the author of that known after the name of Leishman. Stained in this manner, the blood plates show a central portion composed of numerous small granules, varying in tint from red to violet, surrounded by an area assuming a pale blue homogeneous colour. The giant cells in the marrow (megakaryocytes) and in the spleen have a protoplasmic covering of a very similar nature. The more centrally situated cytoplasm is more or less densely crowded with minute red or violet granules, while that towards the margin is homogeneous and of a pale blue colour. As a rule, these giant cells have a spherical shape, but occasionally they develop pseudopodia, which are merely projections of the cytoplasm. These have a central core of the red granular matter, with a covering of the pale blue homogeneous cytoplasm, and their diameter is never less than that of the blood plates. These processes have been observed piercing the imperfect walls of the blood sinuses of the marrow and lying free in the circulation. Segmentation of the central granular matter occurs, and ultimately portions separate off with the production of the blood plates.

In support of this thesis the author remarks on the following facts:—

1. Giant cells do lose their cytoplasm, cells almost entirely devoid of such being frequently observed.
2. Identical protoplasmic movements are observed in the marginal zone of the giant cells and in the blood plates.
3. Blood plates are only found in mammalian blood, and it is only in the marrow and spleen of mammals that giant cells are present.

4. Blood plates and giant cells appear at about the same period of embryonic life.

5. In pathological states where blood plates are scanty, as in pernicious anemia and lymphatic leukæmia, giant cells are absent from the marrow and spleen, while in secondary hemorrhagic anemia, where blood plates are much increased in number, the giant cells are numerous.—L. F.

Experimental Arterio-Sclerosis (*Albany Medical Annals*, February, 1906).—In this paper Drs. Richard M. Pearce, and E. MacD. Stanton record the results of a research which they have recently carried out. The animals experimented with were rabbits, and the condition was induced by the injection of repeated doses of Parke, Davis & Co.'s 1 in 1,000 solution of adrenalin. An initial dose of 3 minims was given, and on every alternate day this dose was repeated, or, as in some cases, gradually increased. In all, twenty experiments were made. Nine of the animals succumbed within fifteen days; some within a few minutes of the injection, and others some hours afterwards. The immediate effect of the injection was collapse, with difficult and rapid respiration; and death, preceded by severe convulsive movements, occurred immediately in some instances. *Post-mortem* examination of these animals revealed acute cardiac dilatation and oedema of the lungs, with small subpleural and subpericardial hæmorrhages.

Eleven of the animals survived from eight to twenty-eight injections, and lived for from 16 to 59 days. The aorta in six of these showed gross changes, while in the other five macroscopic and microscopic examination was negative. Curiously, these latter five animals were from one litter, and at the time of first injection weighed 750 grammes. It is stated by Pic and Bonnamour that it is impossible to produce arterio-sclerosis in animals of less weight than 2,000 grammes, but the present authors, while agreeing in the main, did not find this an absolute rule.

The vascular changes in the six animals were limited to the aorta, the other arteries, as brachial, carotid, and renal escaping. The thoracic portion was most affected, there being seldom any mischief found below the coeliac axis. The earliest change visible to the naked eye was a faint, irregular, greyish streaking of the intima, without any thickening. This occurred with five injections, and as early as the ninth day. After from eight to fifteen injections, very definite lesions were found. Irregular isolated or confluent areas, usually slightly depressed, of a pearly grey colour, and almost constantly calcified, were present. With from twenty to twenty-five injections, lesions of a similar nature, but of much greater severity, were produced. The aorta was more or less distorted and inelastic, irregular dilations alternating with brittle areas of calcification.

Histological examination of the early cases showed small areas of degeneration of the muscle, which assumed a finely granular appearance, and was devoid of nuclear staining. The elastic fibres at these parts lost their natural waviness, became slightly thickened, and were more closely approximated than normally. In the more advanced lesions the necrosis of the muscle was more extensive, and had superadded some calcareous infiltration, yet the elastic tissue remained comparatively healthy. In the most severe lesions of all, the calcareous infiltration was most extreme, and the elastic tissue in the dilated portions was degenerated and much fractured. It was in these latter examples that processes of repair were first noticed, and this took the form of strands of embryonic connective tissue in the calcified areas, and proliferation of the endothelium and subendothelial connective tissue of the intima, which was limited to the areas of dilatation.

The more prolonged the action of the adrenalin, the more complex was the picture, and the more closely did it resemble arterio-sclerosis in the human subject. This is especially true of the changes in the intima, which, with its newly-formed connective tissue and elastic fibrils, in some instances constituted one-third of the thickness of the whole arterial wall. In comparison with the human variety, however, there is a difference in the initial lesion and in the

degree of atheroma, facts probably to be accounted for by the thinness of the rabbit's aorta, and insufficient time having elapsed after the injections for the development of degeneration in the thickened intima.

The changes noted in the other organs were cardiac enlargement, passive congestion and œdema of the lungs, with occasionally degeneration of the myocardium and skeletal muscles.

Of the *modus operandi* of adrenalin in the production of the above changes, the authors are unable to speak.

In conclusion, the authors consider that these experiments lend considerable support to Thoma's thesis that the intimal change is secondary to a primary medial alteration, and is of the nature of a repair process to compensate for a weakened media and widened lumen.—L. F.

SURGERY.

By JOHN PATRICK, M.A., M.B.

Carcinoma in Early Life. By C. G. Grulee (*International Magazine of Surgery, Gynecology, and Obstetrics*, June, 1906).—This author reports a case of carcinoma of the rectum in a girl, 16 years of age. The girl came to the Pediatric Department of the North-Western Medical School, Chicago, with complaint of pain in the left iliac region of five weeks' duration, very obstinate constipation, with bright red blood in the stools (the amount varying from small streaks to a profuse hæmorrhage), anorexia, vomiting, and loss of weight. On examination, the girl appeared more like 13 years of age than 16, with very poor muscular development. Her expression was vacant, indicating inferior mental capacity. In the left iliac region was felt a nodular mass which was thought to be impacted feces, and the diagnosis of chronic constipation was made and appropriate treatment instituted. Improvement in the general condition followed, but the blood did not cease to appear in the stools. A rectal examination, made two months after the patient's first visit, revealed the presence of a hard, irregular mass, evidently involving the wall of the rectum, chiefly posteriorly. On removing the finger there was quite a profuse hæmorrhage. At a later examination a small portion of the tumour mass was broken off, and, on microscopical examination, found to be typical adenocarcinoma. Two months later, again, on 27th March, 1906, rectal examination showed that the carcinoma had grown, so that it could be felt an inch above the rectal sphincter, and occluded the lumen so much that the tip of the finger could not be introduced into it. The patient was more emaciated and anæmic, but the constipation had been relieved. Blood was still abundant in the stools.

The writer remarks on the rarity of the condition, and gives a list of eleven cases of carcinoma of the rectum occurring under 20 years of age, none of which belong to very recent literature.

Torsion of a Mass of Omentum in an Indistinguishable Hernial Sac. By Professor Riedel (*Centralblatt für Chirurgie*, February, 1906).—The author has been of opinion that twisted tumours of the omentum might follow long after the disappearance of a hernia regarded as containing omentum only; that there might be a tumour of the omentum hanging into the abdominal cavity, attached by a thin pedicle, which might some day become twisted on its axis. Strict proof of the accuracy of the theory has been furnished by the following case:—

E. W., female, 26 years of age, was taken to hospital on 12th December, 1905. She was an unusually strong and healthy young woman, and had never had a hernia. She took ill on 9th December, 1905, in the middle of the day,

with such severe gastric pain that she sought a physician at once. Next day the pain spread to the right and downwards; there was no vomiting, but there was some gaseous eructation. After other twenty-four hours had passed, the pain spread over the whole abdomen so that the patient could not leave her bed. Her temperature remained normal. As the pain continued, she was brought into hospital. On admission there was no tumour to be made out, the abdomen was only a little distended, pain and tenderness on pressure were felt in the right lower abdomen. Temperature was 36.8° C.; pulse 80 per minute; diagnosis, appendicitis.

Operation.—On opening the abdomen a thick mass of omentum projected itself into the wound. The appendix was healthy. Investigation of the omental tumour showed that it lessened in size as it passed downwards, and that it disappeared beneath Poupart's ligament. Gentle traction on the omentum brought the neck of the sac of a femoral hernia into the abdomen; further pulling loosened the omentum from the hernial sac, so that it slipped through the neck and appeared in the abdominal cavity as a process of omentum twisted on its own axis. Its distal end was covered with shreds of fibrin, by which adhesion had taken place to the hernial sac. A portion of the omentum was removed and the abdominal wound stitched. The hernial sac was opened by another incision made directly over it; its contents were simply some pieces of fibrin and a trace of red-coloured serum. The sac was removed. The wounds healed uneventfully.

The patient was thoroughly examined before operation and no trace of fulness or swelling could be found in the neighbourhood of the femoral ring. The diagnosis was wrong, but no tumour could be felt, as the patient had a fairly thick layer of abdominal fat. Had the patient been thin a slight prominence above Poupart's ligament might have been felt. The diagnosis between appendicitis and a torsioned omental tumour situated on the right side is impossible.

Hæmorrhoids situated high in the Rectum as a Cause of Obscure Bleeding. By E. E. Goldmann (*Centralblatt für Chirurgie*, 30th June, 1906).—The importance of "hidden hæmorrhoids" as the cause of serious anæmia has been pointed out by Ewald and Nothnagel. Only by rectoscopic examination can these dilatations of veins be demonstrated. Nothnagel's case was one of hæmorrhage from the rectum of twenty years' duration, and for thirteen years various methods of treatment had been unsuccessfully tried. It was only when Otis's speculum was used that the varicose veins in the *pars ampullaris* were seen. The writer now makes a routine speculum examination of the rectum in all diseases of the lower bowel, and has frequently benefited by it. The following case illustrates the point:—

A man of 35, a restaurant keeper, consulted him on 3rd September, 1904, for "hæmorrhoids" which had been present for five years, with frequent hæmorrhage. He occasionally improved with treatment, but for several months past he had had a bloody, slimy discharge which no treatment affected. The patient was very anæmic and his mucous membranes were pale; in other respects he was quite healthy. The motions contained fine blood-stained shreds intimately mixed with faecal matter. The external appearance of the anus was normal. A rectoscopic examination revealed on the anterior wall, 10 cm. above the anal margin, small enlarged veins, which projected like polypi into the lumen of the bowel. Some of these varices were actually bleeding, and others had a coating of blood-clot. The mucous membrane in the vicinity showed a slight catarrh; otherwise it was normal. The wreath of veins was destroyed by means of the galvano-cautery, with complete success and cessation of the bleeding, which up to the present has not recurred.

In a second case, the writer found an isolated knot of veins, as big as a hazel-nut, 18 cm. above the anus.

As regards the situation of such enlargements of veins, Schreiber repeatedly found, 15, 16, and 19 cm. above the anus, solitary and multiple clumps of veins without any indication of hæmorrhoids of the ordinary type or other changes

in the mucous membrane. In not less than 10 per cent of cases examined by the rectoscope by Schreiber were anomalies of the veins found. It must also be noted that highly-situated hæmorrhoids may be present along with the ordinary "external" and "internal" hæmorrhoids. The best treatment is to destroy them with the galvano-cautery through a speculum, which shall put them in full view of the operator's eye.

NERVOUS DISEASES AND INSANITY.

By L. R. OSWALD, M.B.

Heredity and Education in the Genesis of Mental Disease. By Toulouse and Damage (*Revue de Psychiatrie*, June, 1905).—In this paper Toulouse, writing in collaboration with one of his pupils, restates his arguments against the view which, since the time of Morel, has exaggerated the importance of heredity in mental disease. He claims for the environment, and for that limited and selected application for the environment which is called education, a large, and, it may be, a predominant part in the genesis of insanity.

In other contributions to medical literature, Dr. Toulouse has touched on this question, but in the present article his arguments are elaborated. He applies the general considerations of the influence of the milieu, as seen in the morphological variations on plants and animals under different climatic and other conditions, to the facts of insanity, and points out that the usual proof of the predominant influence of heredity, from the frequency with which cases of mental disorder can be traced in the family history, is fallacious in many ways. For example, the conception of what constitutes abnormality of mind is usually vague and indefinite; and, further, the results cannot be controlled by any reference to the conditions in the family history of the sane.

It is, the author holds, his early education which in a great measure gives the individual his way of reasoning and his way of reacting to emotions. Growing up amongst people who exercise no restraint on their feelings, who practise no intellectual discipline, the child of the neurotic parents becomes like them subject to irrational thought.

The authors insist on the importance of a specially adapted education as a means of preventing the development of mental disease in predisposed subjects.—H. C. M.

On the Etiology of Asylum Dysentery. By W. Bernard Vinobel, M.D. (Thesis, *Journal of Mental Science*, April, 1906).—The author comments upon the prevalence of this disease in English asylums, and its rarity in the out-patient department of general hospitals, in workhouses, infirmaries, prisons, and even among the London poor, and upon the fact that although during the last four years precautions have been taken as regards the isolation and disinfection of cases, there is little diminution in the number of these, or of deaths from this cause. In 1901, for example, 5·6 per cent of all deaths were due to asylum dysentery in the London county asylums, and in 1904 the percentage was 3·8.

Several micro-organisms have been found constantly present by various observers, and the author thinks it probable that the disease is caused by one or more organisms of universal distribution, either within or without the colon, and becoming pathogenic under favourable conditions. An unhealthy soil probably predisposes to it, and a disturbance of the subsoil seems frequently to determine an outbreak—numerous instances in which this occurred being given. That the resisting power of animals to infection is lowered by their breathing sewage effluvia has been proved, and severe diarrhoea not infrequently follows an exposure to such air in the case of human beings—both sane and

insane. A faecal odour must permeate the wards occupied by lunatics, and the author regards this as a powerful predisposing factor; this explains also, he believes, the more even distribution of the disease on the female side of an asylum—dirty habits being, as they are, common among most classes of insane women. Another important factor is cerebral degeneration. The disease is rare among imbeciles and occurs most frequently in cases of gross cerebral deterioration. It is supposed that the resisting power of the intestine against bacterial invasion is diminished in these cases, and that there is disturbance of the normal control exercised by the intestine over the growth of micro-organisms. The fact that acute colitis not infrequently follows a severe lesion of the spinal cord supports this theory. By means of charts, the author demonstrates that the disease is not spread by the transference of recovered patients from ward to ward—and he is evidently of the opinion that it is not contagious.

The questions of age, sex, occupation, filth-eating, meteorological conditions, and seasons are briefly dealt with, and none of them is held to have etiological importance. The occurrence of the disease among members of the asylum staff may be caused by a virulent form of the organism of asylum dysentery in a person whose resisting power has been temporarily reduced—possibly by the inhalation of air having a faecal odour.

The rarity of the disease in the Scottish asylums is not commented upon.—M. B. H.

The Morison Lectures for 1906: The Pathology of General Paralysis of the Insane. By W. Ford Robertson, M.D. (from a summary in *The Journal of Mental Science*, April, 1906).—Dr. Robertson has for the last six years been carrying on a series of investigations on the pathology of general paralysis of the insane. In 1901 Dr. Lewis C. Bruce pointed out that, in cases of general paralysis, febrile attacks occur every two or three weeks, accompanied by leucocytosis—except in the third stage of the disease, when leucocytosis may occur without pyrexia. This observation led him to regard the disease as due to the absorption of bacterial toxins from the gastro-intestinal tract. Dr. Robertson came to a similar conclusion about the same time, as a result of his investigations in the *post-mortem* room. Another investigator found further evidence of chronic toxæmia in widespread endarteritis. In 1902 a bacteriological investigation was begun by Dr. Robertson and others, and is still in progress. A micro-organism resembling the Klebs-Loeffler bacillus was found so constantly, and in such large numbers, in cases of general paralysis as to lead the investigators to regard it as of etiological significance. So far the evidence in its favour is as follows:—

1. It is constantly found in large numbers in the alimentary or respiratory tract, or in both, and in the genito-urinary tract in cases of advancing general paralysis.

2. In a thread form it has been found invading the walls of the alimentary or respiratory tract in five cases.

3. It is commonly the only micro-organism present in the catarrhal pneumonic foci found *post-mortem*.

4. It has been grown from the brain after death in ten out of twenty-four cases.

5. It has been found once in the fresh blood, and twice in sections of the brain. Disintegrating bacilli can be found in many cases in the brain.

6. Dissolving bacilli can be found in the fresh blood and cerebro-spinal fluid, especially during a congestive attack.

7. Pure cultures of the organism have been obtained from the fresh blood in four cases, and from the fresh cerebro-spinal fluid in two.

8. The urine commonly contains it in abundance.

9. Three rats and a goat inoculated with it developed symptoms and showed *post-mortem* changes resembling general paralysis.

10. The leucocytes of the general paralytic have a greater power of dissolving the bacillus than have the leucocytes of controls.

Treatment by means of antiserum is to be tried at the Edinburgh Royal Asylum.—M. B. H.

Isopral. By Klatt (*Die Heilkunde*, March, 1906).—The varying effects of the same doses of hypnotics in different individuals is well known, and it is useful to hear of a hypnotic worthy of trial when those most frequently in use have failed. Isopral is given in 2-gramme doses, and the author found it specially useful in cases of delirium tremens in which there were no cardiac or pulmonary complications. It does not seem to act so well in maniacal conditions, and probably will not replace the more commonly used drugs, but it has been found to be a pleasant and reliable hypnotic in cases of mild melancholia and neurasthenia. This is confirmed by the reviewer.

The author describes the case of an old lady with severe hypochondriacal melancholia, and with whom all the narcotics had failed to induce sleep. After the first dose of isopral she slept for three hours, and soon began to sleep naturally; but it seems to us that in this case the action of suggestion could not be altogether excluded. It is not recommended as a narcotic, and there are evidences pointing to the danger of its administration where degeneration of the heart muscle is present.—L. R. O.

Neuro-Insane Constitution. By S. R. Macphail (*Derby Asylum Reports*, 1906).—Writing of the causation of insanity, Dr. Macphail discusses the difficulty of assigning a given attack to one specific cause. He believes that what he describes as the neuro-insane constitution is the most important factor in the production of insanity, and that at least 60 per cent of the admissions to asylums have broken down because the nervous system was the weak point in the families from which they sprang. In such cases the immediate or exciting cause may be very trivial, the chief predisposing causes being the hereditary potentialities of the patients and the occurrence of previous attacks. Macphail believes that without looking for any exciting causes, such as emotional strains, physiological crises, diseased bodily conditions, and unhealthy excesses, we can explain the mental breakdown in the great majority of cases by the inheritance of an unsatisfactory brain and nervous system. He does not, it will be gathered, put any value on environment as a causative factor in the insanities, though by many writers it is believed to be secondary in importance only to heredity.—L. R. O.

DISEASES OF THE SKIN.

By J. WYLLIE NICOL, M.B., C.M.

Treatment of Simple Warts by Internal Remedies. By Dr. Arthur Hall (*British Journal of Dermatology*, March, 1906).—The writer published a case in the *British Journal of Dermatology*, vol. xvi, p. 262, in which numerous warts of the scalp, of two years' duration, disappeared absolutely in two or three weeks after the administration of sulphate of magnesium during that time. Dr. Chalmers Watson afterwards referred Dr. Hall to a case which he had published, pointing out that the particular drug (sulphate of magnesium) was not essential, but that free purgation was the factor of importance in treatment. In support of this theory Dr. Hall publishes the present case.

The patient, a girl, aged 14, had the dorsa of both wrists, hands, and fingers literally covered with warts, preventing her from working as a domestic servant. There were 367 on one hand alone. They had been present more or less from childhood. She had always suffered considerably from constipation. Sulphate of magnesium was prescribed in the form of mist. alba. At the end of two

weeks there was no change; the bowels were still costive, and a week's trial of conf. sulph., with conf. senn., also produced no change. Pills containing aloin and nux vomica were then ordered. In a week the warts were shrinking and the bowels acting well. At the end of three months only a few shrunken warts were left on the fingers. No local treatment had been used.

The result, though less speedy than in his former case, suggests an association of simple warts with constipation.

Researches into the Origin and Structure of Moles and their relation to Malignancy. By Dr. Wilfrid S. Fox (*British Journal of Dermatology*, January, February, and March, 1906).—In view of the fact that the recent tendency of research into the origin of cancer, and malignancy in general, has been to give up the infective hypothesis and revert to the older suggestion of developmental sequestration of foetal relics, Dr. Fox felt it would be of interest to investigate the forerunners of malignancy, and, in particular, that one which appears most likely to be of congenital and developmental origin, in the hope that through it some light might be thrown upon the more important question of malignancy itself. The writer examined moles from seventeen cases. He gives a detailed account of the histological findings (with numerous photographs and micro-photographs), referring very extensively to the literature of the subject. His conclusions are:—

1. That in those moles which show typical columns of nevus cells, the cells are epidermal in origin.
2. That there is a rarer variety of soft moles which show no typical nevus-cell arrangement, and whose origin is uncertain, possibly mesoblastic.
3. That, in the majority, cases of nevo-melanoma are nevo-carcinoma.
4. That melanomata do arise in the skin, entirely apart from moles.
5. That Cohnheim's view of the origin of malignant growths is not borne out by the foregoing observations of the histology of nevo-melanoma.
6. That the pigment appears to be closely connected with the prime cause, by reason of which moles become malignant, whatever that cause may be.

Mucous Membrane Lesions in Lupus Erythematosus. By Dr. Thomas Smith (*British Journal of Dermatology*, February, 1906).—The writer examined fifty-six consecutive cases, and found that sixteen, or 28 per cent, had some affection of the mucous membranes. The majority of the patients made no complaint about the lesions, and were unaware of their presence. The lesions were found on the inner surfaces of the cheeks, lips, and nose, and on the palate and the conjunctivæ. In no case was the tongue affected. Twelve of the sixteen cases were of the discoid type, and four of the disseminated type. Of the forty cases showing no mucous membrane lesion, thirty-four were discoid and six disseminated.

The characters of the lesions observed were as follows:—In recent patches there was a small hyperæmic area, sometimes level with the adjacent mucous membranes, and sometimes apparently swollen. Later, it appeared as an irregularly-shaped patch, with central bluish-grey or whitish depressed scar, surrounded by an erythematous and slightly swollen edge. When the patches were older or non-active, the appearance was that of greyish-white irregular scars, sharply defined from the healthy mucous membrane by a white or bluish-white border. The lips often presented the appearance, as described by Dubreuilh, of having been painted with collodion which was desquamating. As in the skin, the disease was limited to the superficial layers, and the patches were isolated and often symmetrical. In nearly all the cases the lesions were discrete, and were not continuous with lesions on the skin. Sections for microscopical examination were not obtained.

The most common situation of the lesions was on the mucous membrane of the cheeks, opposite the crowns of the upper and lower molar teeth. Ten of the cases were affected in this position. Five patients showed patches on the hard palate, three on the lips, three on the mucous membrane of the septum nasi, and one on the conjunctivæ of the lower eyelids.

All the affected cases were females, but of the fifty-six cases only five were males. Neither age nor duration of the disease seemed to be a determining factor. The urine was examined for albumen in a number of cases, but the result bore no relation to the presence of mucous membrane lesions.

The writer concludes that (1) lesions of the mucous membrane are more common than is generally supposed; (2) they are proportionately more frequent in disseminated cases; (3) the affection is most common on the inside of the cheeks; (4) the presence of the lesions is an important aid to diagnosis; (5) the lesions do not materially affect the course of the symptoms of the disease, and do not call for special treatment.

Books, Pamphlets, &c., Received.

A Treatise on Surgery, by George Ryerson Fowler, M.D. Containing 888 Text-Illustrations and Four Colored Plates, all Original. Vol. II. London: W. B. Saunders Company. 1906. (31s. 6d. net.)

Atlas and Text-book of Anatomy, by Dr. Johannes Sobotta; Edited, with Additions, by J. Playfair M'Murich, A.M., Ph.D. In Three Volumes. Vol. I: Bones, Ligaments, Joints, and Muscles. With 320 Illustrations, mostly in Colours. London: W. B. Saunders Company. 1906. (25s. net per vol.)

Muscles and Nerves: An Atlas of the Superficial Muscles and the Principal Motor Nerves of the Human Body, for the Use of Students of Anatomy and Nurses, by Louis B. Rawling, F.R.C.S. London: The Scientific Press, Limited. 1906. (3s. 6d. net.)

Surgery, Its Theory and Practice, by William Johnson Walsham, F.R.C.S. Eng., M.B., C.M. Aberd. Ninth Edition. With 620 Illustrations, including 24 Skiagram Plates. By Walter George Spencer, M.S., M.B. Lond., F.R.C.S. Eng. London: J. & A. Churchill. 1906. (18s. net.)

Aneurysm of the Abdominal Aorta, by Frederick Pitcairn Nunneley, D.M., M.A. London: Baillière, Tindall & Cox. 1906. (3s. 6d. net.)

Mercers' Company Lectures on Recent Advances in the Physiology of Digestion, by Ernest H. Starling, M.D., F.R.S. With Twelve Illustrations. London: Archibald Constable & Co., Limited. 1906. (6s. net.)

The Care of Children: Practical Hints for Mothers and Nurses at Home and Abroad, by Robert J. Blackham, D.P.H. Lond. Revised and Enlarged Edition. London: The Scientific Press, Limited. 1906. (1s. 6d. net.)

The Medical Diseases of Infancy and Childhood, with Points on the Anatomy, Physiology, and Hygiene peculiar to the Developing Period, by Alfred Cleveland Cotton, A.M., M.D. (Lippincott's New Medical Series.) London: J. B. Lippincott Company. 1906. (15s. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDING 18TH AUGUST, 1906.**

	WEEK ENDING			
	July 23.	Aug. 4.	Aug. 11.	Aug. 18.
Mean temperature, . . .	59·2°	60·5°	59·5°	58·0°
Mean range of temperature between day and night, . .	28·5°	25·3°	28·6°	22·6°
Number of days on which rain fell,	5	6	5	6
Amount of rainfall, . . ins.	0·16	0·87	1·10	1·25
Deaths registered, . . .	233	196	243	239
Death-rates,	14·5	12·2	15·2	14·9
Zymotic death-rates, . . .	0·4	0·4	0·5	0·6
Pulmonary death-rates, . .	1·8	1·2	1·8	1·7
DEATHS—				
Under 1 year,	43	49	60	63
60 years and upwards, . .	51	49	51	47
DEATHS FROM—				
Small-pox, . . . . .	...	...	1*	...
Measles,	2	3	5	1
Scarlet fever,	1	...	1	1
Diphtheria,	1	...	2	1
Whooping-cough,	7	7	6	7
{ Fever,	2	1	...	1
{ Cerebro-spinal fever, . . .	7	2	5	2
Diarrhœa,	13	18	18	18
Croup and laryngitis, . .	...	1	...	...
Bronchitis, pneumonia, and pleurisy,	29	31	36	41
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Diphtheria and membranous croup,	12	12	16	21
Erysipelas,	14	27	19	25
Scarlet fever,	14	20	18	13
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	4	4	5	19
Continued fever, . . . . .	...	...	...	...
Puerperal fever,	2	4	4	1
Measles,†	44	40	43	34

* Chicken-pox.

† Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 22nd August, 1906.

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ORIGINAL ARTICLES.

TWO CASES OF SYRINGOMYELIA.¹

By T. K. MONRO, M.A., M.D., F.F.P.S.G.,

Physician to the Glasgow Royal Infirmary ; Professor of Medicine
in St. Mungo's College.

WITH REPORT ON THE ANATOMY OF THE SPINAL CORD IN
ONE CASE,

By HUGH M'LAREN, M.B., C.M., F.F.P.S.G.,

Assistant Physician, Glasgow Royal Infirmary.

CASES of syringomyelia, the condition characterised anatomically by the presence of cavities in the spinal cord, may be divided into two classes.

1. In one of these classes there is a condition of *gliomatosis*. The cord becomes the seat of a new growth, which is gliomatous or sarcomatous in its nature, and in which cavities form. A great length of cord may be involved, and the organ may be enormously enlarged.

¹ This paper is based on a communication made to the Glasgow Medico-Chirurgical Society on 6th April, 1906. The patient in the one case, and a selection of specimens in the other, were shown at the meeting.

2. In the second class, which is less rare and also less grave, three groups may be recognised. (a) Some are cases of dilatation of the central canal, which may be distended with fluid. This condition may be congenital, and may be associated with spina bifida. Such cavities may have some embryonic tissue around them, or the dilatation may be due to obstruction of the canal by a tumour low down. Dilatations of the central canal are recognisable by the presence of epithelium of the kind which lines the normal canal, and they constitute *hydromyelia* or *hydrorrhachis interna*. (b) In a second group the cavity seems to have originated apart from the canal, and thereafter to have established a communication with it, in consequence, perhaps, of inflammation or softening. In these cases the tissue around the cavities is very apt to resemble the embryonic tissue from which the cord was derived, and there may also be defect of the nerve elements, with overgrowth of glia elsewhere, and especially about the posterior horns and the posterior columns. This condition is spoken of as *gliosis*, and is probably, to some extent at least, of congenital origin. (c) It has been suggested that a third group may be due to minute hæmorrhages taking place at birth in connection with difficult or protracted labour.

CASE I.¹—David M'C., æt. 31, unskilled labourer in print works, was admitted to the Glasgow Royal Infirmary on 30th January, 1906.

Family history.—The parents are living and healthy. There were fifteen brothers and sisters, of whom six brothers and one sister are dead. Five of the brothers died in childhood, and the other of pneumonia. The sister died of some pulmonary affection. There is no history of insanity, fits, or epilepsy in the family, but the father is alcoholic.

Past history.—Patient enjoyed good health until ten years ago. He denies having exposed himself to the risk of venereal infection, but he admits that till two years ago he was a heavy drinker.

History of present illness.—Ten years ago patient noticed weakness in his right thumb; he found he could not oppose it.

Seven or eight years ago people began to ask him what was wrong with his right leg. They seemed to think it was shorter than the other, though the patient himself noticed

¹ For the opportunity of studying this case, and also for excellent notes which have been freely used in drawing up the following report, I am indebted to the kindness of Dr. E. J. Jones, of Alexandria.—T. K. M.

nothing. About this time he noticed that his right haunch-bone stood out and was almost touching his ribs (scoliosis).

Six or seven years ago he got a very bad cut on his finger, which was stitched. He was astonished to find that this operation caused him no pain whatever, though he felt the touch of the doctor's hands and needle. Shortly afterwards he discovered that he had no sensibility to temperature, though the sense of touch was still preserved.

An incident which happened about two years ago may be quoted to illustrate the results of the analgesia and thermo-anæsthesia. Patient went to sleep on one occasion with his elbow leaning on a hot-plate which was used for drying sand. He was not actually drunk, though he had had some liquor that day. When he awoke, after perhaps an hour, he found his elbow black and charred. Nevertheless, he kept at work for the next two or three weeks, till two abscesses developed. These were opened by a doctor, who also scraped the bone. The treatment was painless. The elbow did not heal completely for about six months, but it never caused him any pain.

On the morning of 16th October, 1905, he found on waking that his right arm was completely devoid of power and feeling. He tried for an hour to work with it, and then went for treatment to Paisley Infirmary. In the course of two or three weeks the power and sensibility of the limb were restored to the condition in which they were before 16th October.

Present condition.—The face has a ruddy appearance.

There is distinct, though not extreme, muscular wasting in the right hand and fore-arm. The power of grasping is greatly diminished in the right hand.

There is analgesia and thermo-anæsthesia over the right upper limb, right upper part of the trunk, and right side of the head and neck, including the whole of the right ear, but not including the face. Everywhere, however, tactile sensation is preserved.

The sensitiveness of the skin of the right arm to stimulation by the faradic brush is less than that of the left, but is not altogether lost.

Muscular anæsthesia is also present in the right arm. Whether the muscles are firmly compressed by the hand, or caused to contract by a powerful faradic current, such as gives rise to severe pain on the left side, no pain is induced in the right arm.

Along with the complete muscular anæsthesia there is some defect of muscular tonus in the right arm, and the triceps-jerk

is lost, though, generally speaking, the tendon-jerks in that limb seem to be preserved.

The sense of posture is retained, and the stereognostic sense in the right hand is also preserved.

The right elbow cannot be fully extended, and the olecranon can be felt to be thickened. A skiagram, however, suggests that the change is due to the trauma and operative treatment, rather than to arthropathy. At the same time, there is creaking on passive movement of the joints at the shoulder, elbow, and wrist; and the right wrist is larger than the left, as shown by measurement round the lower ends of the fore-arm bones.

The right arm is somewhat redder than the left. It is

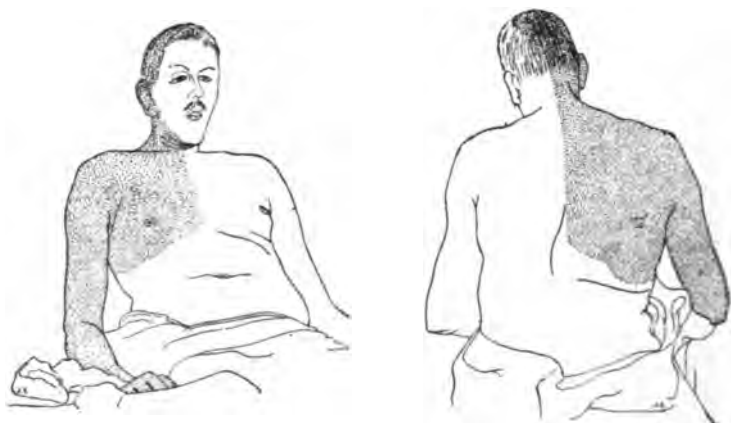


FIG. 1 (Case I).

The dotted area is analgesic. (From sketches by Dr. Alex. Fraser.)

readily chilled, and it takes longer to become warm again than the left. Sweating, whitlows, and ulcers have not been phenomena of the illness.

Patient has occasionally had attacks of severe pain, extending from the back of the right shoulder up the neck to the right ear. These pains are not associated with tenderness, and are not influenced by movements of the shoulder-joint.

The extent of the analgesia on the trunk varies from time to time. Its lower limit has been noted as high as the sixth dorsal spine, and as low as the second lumbar. It is bounded pretty accurately by the middle line, both in front and behind. Though the whole ear is analgesic at present (6th April, 1906),

it was observed about seven weeks ago that the upper posterior part was not analgesic, though it was the seat of thermo-anæsthesia.

There is well-marked scoliosis, with the convexity to the right in the upper dorsal region, and the concavity to the right in the lower dorsal and lumbar region.

There is weakness, with very slight wasting, of the right

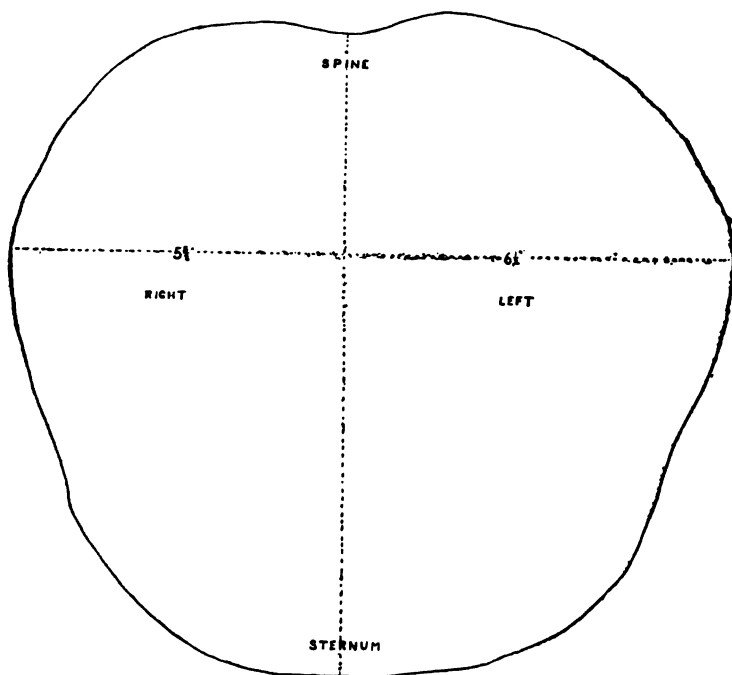


FIG. 2 (Case 1).
Cyrtometer tracing.

lower limb. Exaggeration of the knee-jerk, and a tendency to ankle clonus, are present, chiefly on the right side.

There is distinct ptosis, especially on the right side, but no other change in the external ocular muscles. There is no nystagmus. The right pupil is smaller than the left. Each contracts to light, and also when the patient looks at a near object. Reflex dilatation is observed on the left side, but not on the right. There is slight bilateral restriction of the

visual fields, but as this involves chiefly the upper parts of the fields, it may be accounted for by the ptosis. The fundi are normal.

The movements of the face and tongue are normal. Hearing is somewhat impaired on the right side, but this is accounted for by suppurative otitis media in boyhood, which has permanently damaged the middle ear. Speech is normal, and there is no tremor. The sphincters are not impaired; there is no girdle sensation, ataxic gait, or clubfoot; and there has been no fit, loss of consciousness, dizziness, or impairment of memory. The internal viscera generally are healthy, and the temperature is normal. Dr. Alex. Fraser examined the blood, and found the reds normal in films; whites, 8,750 per c.mm.

Differential count.—

Polymorphonuclears,	.	.	.	.	51·2	per cent.
Small lymphocytes,	.	.	.	.	36·4	"
Large lymphocytes,	.	.	.	.	9·02	"
Eosinophiles,	.	.	.	.	2·8	"
Mast cells,	.	.	.	.	0·3	"

The leading symptoms in this case are characteristic, and do not call for any lengthy remarks. Inequality of the pupils is common in this disease, the smaller size of the right being attributable to greater interference by the lesion with the sympathetic fibres at the lower cervical region of the cord. The ptosis is probably also due to involvement of sympathetic fibres. The spinal curvature is to be accounted for by weakness of the spinal muscles, though it is at least possible that arthropathy of the spine may have some influence in this direction. It is rather remarkable that *muscular sensibility* is lost, and that *muscular tone* is impaired in the right arm: both because some at least of the tendon-jerks are preserved in that limb, and in view of the recognised doctrine that the afferent nerve fibres from the muscles and the fibres connected with the sense of touch accompany one another in the posterior columns, while those connected with pain and temperature travel in the central grey matter. Yet in this case the afferent muscle nerves have suffered, while the tactile nerves have escaped. So far as I know, observers who have tested the muscle sense have usually found it normal.

The attacks of pain and the variations in the extent of the analgesia may be due partly to the changing pressure of the fluid in the cavities in the cord, and partly to changes in the tissues around these cavities irritating the nerve tracts.

The principal treatment in this case has been by hypodermic injections of strychnine, combined with massage, and the patient has thought at times that he recognised some improvement in the affected arm, but the condition really remains very much what it was at the time of admission.

CASE II.—James B., æt. 38, formerly a farmservant, was readmitted to the Glasgow Royal Infirmary on 13th November, 1903, complaining of certain symptoms which had troubled him for a long time, and also of great weakness. His illness began in the winter of 1878-79, when he was 14 years of age, the first symptom being weakness of the right hand, but this set in so very gradually that for the first two or three years it was of no material importance to him.

The following is a *summary of his history before admission* to the infirmary:—

About spring, 1882, whitlow of fourth right finger—not very painful. Able to work till 1883, when the power of the legs was lost. In the summer of 1883, headache, dimness of vision, and occasionally vomiting, dizziness, falling, and perhaps unconsciousness for a time. After this, complete loss of power of the legs, and partial loss of power of the arms. Anæsthesia complete from waist downwards, and partial in chest and upper limbs. Expulsive power of bowel and bladder impaired or lost. After a month, some improvement. In 1884 was under Sir William T. Gairdner in the Western Infirmary, and in December of that year was under Sir William Gowers in University College Hospital.

Condition in August, 1897 (under Dr. Alex. Robertson in the Glasgow Royal Infirmary).—Touch, pain, and muscular sense normal; temperature sense impaired; no paræsthesia; ankle-clonus; exaggerated knee-jerks; spastic rigidity; inability to stand with feet together and eyes shut; no muscular wasting.

Readmitted on 13th November, 1903 (under Dr. Monro), with history that in recent years there was some trouble with the bladder, and wasting of the four limbs; occasional employment as clerk, writing with left hand; fall about three weeks ago, since when mostly confined to bed; numerous suppurative lesions over trunk and limbs.

On admission in November, 1903, it was noticed that the whole body was greatly emaciated. Several of the digits of the right hand were over-extended at the metacarpo-phalangeal joints, and flexed at the interphalangeal joints. Some of the left fingers were also flexed. A similar condition was present

in the toes. There was distinct wasting in the limbs, particularly in the right hand and in the thighs. Kyphosis was present, with some degree of scoliosis, the convexity in the latter case being towards the right in the dorsal region. Tactile sensation was impaired in the lower limbs and lower part of the abdomen.

The sense of pain was distinctly diminished over the body generally. The sense of cold was impaired, but not quite lost. The sense of heat was even more defective. The defect was noted in the trunk and all the limbs. The sensitiveness of the muscles to pressure was greatly diminished. The right knee-jerk was exaggerated; the left could not be obtained, owing to a permanent rigidity of the knee-joint. Ankle-clonus was well marked on both sides, and the plantar reflex was of extensor type. The abdominal, epigastric, and cremasteric reflexes could not be obtained. There was a spastic condition of each leg, and sometimes the whole limb would be the seat of trembling. The lower limbs were œdematous. The right pupil was at times smaller than the left. Each pupil contracted to light, and in convergence, but reflex dilatation did not take place. Nystagmus was observable on deviation of the eyes to either side. There was no evidence of involvement of the bulb.

The urine was alkaline and putrid.

There was nothing of importance about the heart or lungs.

Numerous pustules were present over the abdomen and four limbs, and were found to contain an encapsuled diplococcus.

During the few weeks of patient's residence in the infirmary, his vitality slowly decreased. Deep bedsores developed, which discharged large quantities of pus, and laid bare the left great trochanter and the heads of the left radius and ulna. The evacuations were passed in bed. The temperature was febrile. Considerable hæmorrhage took place from the sloughing sore over the left hip. Consciousness became impaired, and patient died on 3rd December.

Post-mortem (4th December) revealed some almost purulent fluid in the left pleural cavity. In the left lung there was recent miliary tuberculosis at the apex, together with congestion and œdema. In the right lung there was miliary tuberculosis of the apex, with hepatisation of the lower lobe. There was commencing hydronephrosis of the left kidney. An abscess was found in the muscles at the back of the chest, on the left side. There was nothing worthy of note in

connection with the heart, spleen, or liver. No abnormality was found within the cranium, except a patch of atheroma on the basilar artery. The condition of the cord will be described by Dr. Hugh M'Laren.

It will be noted that the disease was approaching its fatal termination when the patient was admitted to the wards. At no period of his history do the symptoms appear to have been distinctive of syringomyelia in its most typical form, though some isolated impairment of the temperature sense was noted in 1897, and perhaps in 1884.

When the patient was in the infirmary for the last time, the spinal symptoms pointed to a widely disseminated or diffuse

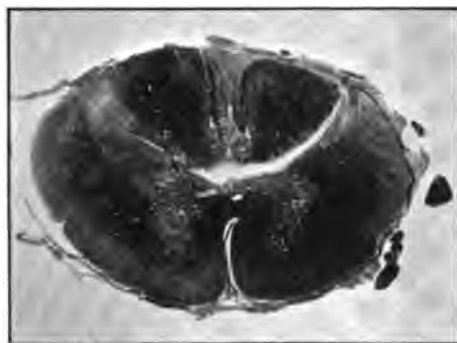


FIG. 3 (Case II).

Second cervical level. $\times 53$. (Photo. by Dr. James Scott.)

process, and, as a matter of fact, examination of the sections prepared by Dr. M'Laren shows a widespread defect of the nerve elements, in addition to the presence of one or more long cavities. In the final stage referred to, there was very little in the way of dissociation of the different varieties of sensation; there was more a lowering of them all. Moreover, the changes revealed by the microscope are so extremely widespread that one can easily understand how all the functions of the cord in a great part of its length might be impaired.

Examination of the spinal cord and nerves by Dr. Hugh M'Laren.—At the *post-mortem* examination the cord was found to be very much flattened, especially in the lower cervical and dorsal regions. After it was removed it was

placed in 10 per cent formalin for twenty-four hours, and then pieces were cut from many segments. Some of these pieces were hardened in Müller's fluid for staining by Weigert's method, some were placed in alcohol, and some were prepared by Marchi's method to show recent degeneration. I shall describe the changes as they were seen at the different levels examined.

Second cervical segment.—Two narrow cavities are seen, one in each posterior horn. The cavity in the right side is the larger, and it has almost entirely replaced the posterior horn. It extends from a little behind and to the left of the central canal to the surface of the cord. The cavity on the left side is very small, and it is situated about the middle of the posterior horn. These cavities are bounded, to a very large extent, by gliomatous tissue, which at places is extending into



FIG. 4 (Case II).

Eighth cervical level. $\times 53$. (Photo. by Dr. James Scott.)

the surrounding grey matter. As the course of the cavities is followed in sections of the cord from above downwards, it is found that the two cavities join one another by a gradual obliteration of the gliomatous tissue which separated them. The larger cavity, which at first was surrounded by gliomatous tissue, is now partly lined on its anterior wall by epithelium, resembling that which lines the central canal. The latter canal is distinctly recognisable at some distance in front. At some parts it is patent and at some it is obliterated by an accumulation of cells. A little lower down the cord, but before the third segment is reached, the large cavity sends out a little projection so as to communicate with the central canal.

Sections stained by Weigert's method show extensive degeneration in the columns of Goll, a slight degree of

degeneration in the columns of Burdach, and well-marked degeneration in the direct cerebellar tracts and in Lissauer's tracts. There is very little recent degeneration at this level.

Fifth cervical segment.—The cord at this level is slightly flattened. The cavity is now a dilatation of the central canal. It extends along the posterior horns, so as almost to reach the surface of the cord, and the greater part of the posterior horns is destroyed. A considerable part of the anterior wall of the cavity on either side of the middle line is lined by epithelial cells, and most of the remainder of this wall is lined by a thin band of fibrous tissue.

Sections stained by Weigert's method show almost complete degeneration of the columns of Goll, and the inner parts of the



FIG. 5 (Case 11).

Second lumbar level. $\times 5.3$. (Photo. by Dr. James Scott.)

columns of Burdach are also degenerated. Lissauer's tracts are degenerated. There is also some degeneration in the direct cerebellar tracts, but less than at the second cervical segment. Sections stained by Marchi's method show some degeneration in the direct pyramidal tracts, antero-lateral columns, and posterior columns.

Eighth cervical segment.—The cord is now very much flattened. The cavity is as large as at the fifth cervical segment, and involves the same area. Extensive portions of the wall are lined by the characteristic epithelium. This is especially extensive on the anterior wall, the greater part of the remainder being lined by fibrous tissue. In the lateral parts of the cavity there are some fairly large islands of nerve tissue, some of which are well supplied with blood-vessels. These

masses are larger on one side than on the other. The posterior horns are entirely destroyed, and the anterior horns to a large extent.

The cord at this level is so altered in shape that it is difficult to localise the different tracts. Sections stained by Weigert's method show degeneration in the lateral columns and in the posterior half of each of the columns of Goll. Marchi's method shows degeneration in the outer portion of the anterior columns, in the lateral columns, and in Burdach's columns.

Third dorsal segment.—The cord is still flattened. The cavity is not so large as at the eighth cervical segment. It occupies a more central part, extends laterally for some distance into each posterior horn, and is lined with epithelial cells on its anterior, and partly on its posterior wall. At this level degeneration is most marked in the lateral columns of the cord, but can be distinctly recognised in the direct pyramidal tracts and in the columns of Goll. There is some recent degeneration in the antero-lateral regions and the posterior columns.

Sixth dorsal segment.—The cord is still flattened. The cavity is like that at the third segment. There is well-marked degeneration in the direct pyramidal tracts and in the lateral columns, and, to a less extent, in the posterior columns.

Twelfth dorsal segment.—At this level the cord is still flattened. The cavity now extends nearly to the surface of the cord. Degeneration in the direct pyramidal tracts is less than at the sixth dorsal segment, but it is still very considerable. There is extensive degeneration in the lateral columns, and a little degeneration in the posterior columns.

Second lumbar segment.—The cord is still flattened. The cavity extends close to the surface of the cord, and the characteristic lining of epithelium is still recognisable. At this level the central canal can be seen a little distance in front of the cavity. The canal is considerably dilated and is flattened so that its anterior and posterior walls nearly come into contact. The degeneration in the nerve tracts is less than higher up, but is still well marked in the lateral columns.

Fifth lumbar segment.—At this level there is no cavity. The obliterated central canal is represented in the section by a considerable oval area which is occupied by a feltwork of neuroglia and numerous groups of large cells resembling the cells lining the canal higher up. Degeneration at this level is almost confined to the posterior part of the lateral columns at the surface, and is much more marked on one side than the other.

In sections stained by Nissl's method, the ganglionic cells showed no change beyond the presence of yellow pigment.

No change from the normal was recognised in connection with the blood-vessels in the cord.

The great sciatic nerve and the posterior tibial from each lower limb were examined, and a distinct amount of degeneration was discovered in all.

Summary.—Cavity in the spinal cord extending horizontally into each posterior horn, and vertically from the second cervical to the middle lumbar region; constituted throughout the greater part of its length by the dilated central canal, but separate from that canal at both its upper and its lower extremity. Widespread sclerosis of the cord in almost the whole of its extent. Degenerative changes in nerves of the lower limbs.

CASE OF ANASTOMOSIS BETWEEN THE FEMORAL VEINS SUBSEQUENT TO THROMBOSIS OF THE LEFT EXTERNAL ILIAC VEIN DURING TYPHOID FEVER.

By A. N. M'GREGOR, M.D., F.F.P.S.G.,
Assistant Surgeon, Glasgow Royal Infirmary.

THIS case of varicosity of the veins of the lower part of the abdominal wall is interesting on account of its rarity, and it presents some features of difficulty in the matter of causation and treatment.

W. S., æt. 26, a brakesman, was admitted to Ward 23 of the Glasgow Royal Infirmary on 31st December, 1903, complaining of "swollen veins of the front of the abdomen." The patient enjoyed perfect health until seven years ago, when he suffered from enteric fever. During the course of that illness his left leg became very painful, and since then it has been a little larger than his right leg, especially when at work. There has been no pain in the leg from that date, but it feels stiff at times. Four years ago he had a second attack of enteric fever while in South Africa, and about six months after that he had a slight attack of malaria during his stay in Beira. It was shortly after this that he noticed the swollen veins on his abdomen. They gradually increased in size until about eight months ago, but since then he thinks they have been stationary.

He has had neither pain nor discomfort from them, but he seeks treatment on account of his fear that they may burst.

He has had no hæmorrhoids for the last year, but during the three previous years he was slightly troubled with them. He has never had jaundice, though he has had one or two "bilious attacks" after over-indulgence in alcohol. The family history reveals no item of importance.

Present condition.—On inspection of the abdomen a plexus of veins is seen occupying the lower segment of the abdominal wall, triangular in shape, the apex being situated at the



umbilicus, and the two inferior angles corresponding to the apices of Scarpa's triangle.

The main trunks of this plexus occupy the situations of, and are presumably, the superficial epigastric and superficial external pudic veins of both sides. They are, however, much altered in shape, being distended and somewhat tortuous. The left posterior angle of this triangle is a bulbous swelling, apparently the extreme upper end of the internal saphenous vein, from which a large venous trunk proceeds upwards and inwards to the inner end of Poupart's ligament. There it divides into two branches, one directed horizontally across the

pubis, and being directly continuous with a similar vein of the opposite side, the other extending upwards and inwards towards the umbilicus, thus forming the left side of the triangle. The right side of the triangle is formed in a similar manner. These two sides communicate directly at the apex and indirectly by means of a collateral branch about the upper third of the triangle.

The left internal saphenous vein is not visible in the thigh; the short saphenous is normal; there is a dilated vein (superficial circumflex iliac) situated in the front of the thigh, about 2 inches below, and parallel to, Poupart's ligament, the blood in which flows upwards instead of towards the internal saphenous vein. The left leg below the knee is somewhat cyanosed as compared with the right; otherwise the veins of the leg appear to be normal. In the right leg the veins are normal below the junction of the superficial epigastric and superficial external pudic branches of the internal saphenous vein.

On testing the flow of blood in these dilated veins, it is noticed that on the left side the blood flows from the saphenous opening across the pubis to the right, and through the left superficial epigastric vein upwards towards the umbilicus, where it anastomoses with its fellow on the right side in which the blood flows normally, *i.e.*, downwards. When the patient lies supine this plexus of veins is empty, turned on his right side they remain empty, but if turned on his left side they gradually fill.

When he lies supine the elevation of either leg has no effect, but depression of the left leg over the bed causes slow dilatation.

The circumference of the left calf measures $1\frac{1}{4}$ inch more than the right; there is no œdema of the limb.

Remarks.—The patient's desire is to get rid of these veins because, as his occupation requires him to jump in and out of waggons, he fears that they may burst or be injured. Notwithstanding the statement of Deaver¹ that "these veins may be enormously varicose where the return circulation through the inferior vena cava is not disturbed," it is evident that in this case the dilatation of the veins is eminently purposeful. Not only are they dilated, but the blood in them flows from left to right between the saphenous veins. At first sight it seems as if this anastomosis had developed for the relief of an obstruction of the left common femoral or external iliac veins,

¹ *Surgical Anatomy*, vol. iii, p. 46.

but examination reveals the patency of these veins, for with the patient in the erect position, and the saphenous and femoral veins compressed below the junction of the dilated veins, this plexus, being emptied, fills up rapidly. So, too, when the patient lies on his back, the vessels are empty.

Authorities differ as to the presence of valves in the external iliac and femoral veins; in this case they are evidently absent or inefficient.¹

It is difficult at this date to say what veins were thrombosed during the first attack of enteric, as at present no localising sign can be detected. Osler² gives the proportion of veins affected as follows:—"In 16 out of 829 cases—7 in left femoral, 4 in popliteal, 4 in long saphenous, and 1 in a superficial vein. The more common occurrence in the left crural vein is due possibly, as suggested by Liebermeister, to the fact that the left common iliac vein being crossed by the right iliac artery the flow of blood is not so free as in the right vein."

In my case the obstruction must have been below the level of the junction of the iliac veins, since the right takes up the work of the left.³

The question arises—May these dilated veins be ligatured safely?

My own feeling is that there is now sufficient patency of the common femoral and external iliac veins to carry on the circulation, and that, in any case, if extra accommodation were required the deeper branches of the iliac vein would take up the circulation more safely (the deep epigastric, deep circumflex iliac, and pudic) than those presently affected.

It has been suggested that, on account of the history of hæmorrhoids and bilious attacks, this dilatation is for the relief of the portal circulation, through the communicating veins of the umbilicus.⁴ If this were the case, however, the blood would flow downwards through the superficial veins of both sides.

¹ Quain, tenth edition, vol. ii, part 2, p. 539—External iliac, one valve, rarely two; common femoral, three or four valves; ilio-femoral, valve of Bennett at Poupart's ligament. Cleland and Mackay, p. 481—External iliac, one or two valves. Prof. Trendelenburg, of Bonn, *Med. Annual*, 1893, p. 546—says, "the vena cava, iliaca, and trunk of vena femoralis immediately below Poupart's ligament have, with few exceptions, as is well known, no valves."

² *Prin. and Prac. of Med.*, fourth edition, p. 21.

³ Keen, in his *Surgical Complications and Sequels of Typhoid Fever*, discusses the occurrence of venous thrombosis very thoroughly (pp. 68 *et seq.*), and quotes a case, similar to the present, reported by Macintosh, *Glasgow Medical Journal*, 1892, vol. xxviii, p. 54.

⁴ Schiff, quoted by Deaver, *loc. cit.*

In January, 1904, the patient was shown to the Glasgow Pathological and Clinical Society, when the foregoing paper was read. In the discussion which followed, the general opinion was that ligature of the veins would not be safe, as the large flow of the blood through the dilated veins seemed to indicate continued obstruction of the common or external iliac veins. Mr. Maylard suggested the use of a truss experimentally in such a way that the anastomosing veins would be compressed, and so the patency of the normal channels would be tested.

This suggestion was adopted, careful measurements being taken before and after the wearing of the inguinal truss on two consecutive days, the patient being allowed to walk about the ward all day. The circumference of the affected leg at a point 11 inches above the tip of the external malleolus was 14½ inches in the morning, and there was practically no difference in the evening of either day. The operation of ligaturing the superficial pudic veins was performed on 30th January, and the patient made a good recovery.

After an interval of about six months the only veins prominent were those of the apex of the triangle, namely, the two superficial epigastric veins and their intercommunicating branches. These were ligatured on 8th June of the same year, and the patient was dismissed "well" on 27th of that month.

On inspection at this date (October, 1905), no superficial veins are prominent or visible; palpation fails to distinguish them. The patient has been at work continuously since the second operation wound healed (27th June, 1904).

In need only be said, in conclusion, that the experiment with the truss gave a distinct indication that the capacity of the left iliac veins was sufficiently restored to accommodate all the blood passing from the limb of that side. The distended superficial veins were no longer necessary; they constituted a danger to the patient, and, as they showed no signs of diminishing spontaneously, the operative procedures were undertaken. An examination of the patient eighteen months afterwards showed them to have been successful.

NASAL HEADACHE¹

BY W. S. SYME, M.D. EDIN.,

Assistant Surgeon, Ear, Nose, and Throat Hospital, Glasgow.

As in the affairs of everyday life it is the worry of small things, rather than the keen anxiety of large concerns, which gives us the greatest distress, so, I think it will be acknowledged, in ordinary medical practice, the practitioner gets from the minor complaints of his patients an amount of tiresome annoyance quite out of proportion to what he looks upon as their real significance. To take the case of headache, what an amount of discomfort and indisposition can be laid to its account, and how often the medical attendant is baffled in his treatment of it! And herein, I imagine, lies the crux of the matter. Does he not frequently—indeed, as a rule—treat this prominent symptom (for, like indigestion, neuralgia, and other such phenomena, it is a symptom and not an actual disease), and not the causative diseased condition; and does not this explain the failure?

It is not my intention—indeed, I do not pretend to be competent—to discuss the relationship of headache to the various maladies, grave or otherwise, of which it is a prominent, or the prominent, symptom. While this connection has been recognised for long enough in regard to certain serious disorders, it is not so long since “biliousness” was the extent of our knowledge, or rather of our ignorance, in relation to the majority of cases of this complaint. But we have advanced of late years. Now we have intestinal toxæmia, uricacidæmia, eyestrain, nerve-storm, or some other condition banned as the *fons et origo mali*. Up to the present, diseases of the nasal cavities have received little attention in this connection; not by any means so much as, from my own experience I am convinced they deserve. This is no doubt in a measure due to the fact that the study of diseases of the nose is itself in the main of only recent development. And yet this organ is, from its position, its anatomical connections, and its functions, eminently calculated to give rise, when affected with pathological changes, to the symptom we are now considering.

1. The nasal cavities are situated in close proximity to the

¹ Read at a meeting of the West Cumberland Division, Border Counties' Branch, British Medical Association, 31st May, 1906.

brain and its membranes; the venous channels of the nose are in direct connection with those inside the cranium; and the same may probably be stated of the lymphatics.

2. The trifacial nerve, the great sensory nerve of the head and face, is in a large part of its course in intimate relation to the nose, and especially to its accessory cavities.

3. The lining membrane of these cavities and of the nose itself has the important physiological action of adding large quantities of water to the inspired air, and, at the same time, by this means, of preventing increase of intracranial pressure—an important consideration in reference to the question of headache. As a corollary to this, the products of purulent disease in these various spaces are readily absorbed by the mucous membrane.

Now we find, as a matter of fact, that all of these reasons are active, so that we may have, and, indeed, do have, headache resulting from direct action of nasal disease on the brain and its membranes, headache from irritation of all or some of the branches of the trifacial nerve (it is a common experience to have headache arising as the result of irritation of a dental branch), and, lastly and very commonly, headache as a result of interference with the function of the nasal mucous membrane, or of absorption by it of the products of suppuration.

A reference to the detailed anatomy of the nose will make evident the importance of the middle meatus in relation to this question. This channel is the meeting place of all the accessory spaces. Through it enters the air to receive from these cavities moisture and heat; and by it, if it remains patent, the results of glandular activity, or of suppuration, escape. Certain of these spaces, the frontal and sphenoidal sinuses and the posterior ethmoidal cells, are separated from the contents of the skull by very thin bone.

We must bear in mind, too, the relation of the fifth nerve to the walls of these cavities, and especially of the sphenoidal, so that the necessity for a free and uninterrupted highway is evident. As we should expect, therefore, disease in the region of the middle meatus is prone *par excellence* to give rise to severe and persistent headache. Such was the case of a woman who had suffered for some time from hemicrania. I found a large cyst of the middle turbinate completely obliterating the middle meatus. Its removal was followed by almost immediate cure of the headache. Hypertrophy or cedema of the anterior end of one or both of the middle turbinal bodies is commonly associated with headache, and the appropriate operation is, I might say invariably, followed by relief of this symptom. In

such cases, there is sometimes accompanying and recurring catarrh of some of the accessory spaces, especially of the antrum. As the intermittent enlargement of the middle turbinal subsides, the antral opening becomes patent and the headache disappears, either without or after the washing out of the antrum.

A recurring frontal headache in the morning, of a throbbing nature, is symptomatic of a degree of obstruction in the middle meatal region. This is worse at night while the head is in the recumbent position; but it slowly passes off as the day advances, and as the nose resumes its normal function. Patients thus affected often complain, also, of throbbing over the sides of the nose towards the root, a sensation probably referable to a catarrhal condition of the mucous membrane of the anterior ethmoidal cells.

When we meet with suppuration of one or more of the accessory spaces, with obstruction of the middle meatus (a frequent combination), we often get very distressing headaches. And here let me say, so that I may not be misunderstood, that disease of these cavities is by no means always associated with headache. Indeed, it is not an unusual experience to find a very foul condition of the nasal fossæ, with pus flowing from one or more of the sinuses, with a remarkable absence of headache or of any other symptom. But then there are people who seem immune to headache from any cause. Moreover, it is probable that, in some cases of nasal sinus disease, the changes in the lining membrane interfere with the absorption of the products of suppuration. In ozæna, too, the common absence of headache is no doubt due to this, and to the usual patency of the openings of the various accessory cavities.

However, we do often, indeed as a rule, have headache as a symptom of disease of the accessory spaces of the nose. It occurs in all degrees, from severe and overwhelming to the more common sensation of weight on the top of the head, with concomitant depression of spirits. We have all experienced at times, I have no doubt, the acute throbbing ache over the eyes consequent on inflammation, and it may be suppuration of the anterior ethmoidal cells, frontal sinus, or maxillary antrum, following an ordinary head cold. One has been able to instantly relieve this by the application of a weak solution of adrenalin to the middle meatal region, thus contracting the mucous membrane and permitting of the escape of the inflammatory products, or this has occurred spontaneously with immediate disappearance of the headache.

It is, however, in the chronic stage of suppuration that we

get the most distressing head symptoms, which, for convenience sake, we may describe altogether as headache, a feeling of weight on the top of the head, with disinclination for exertion, and with depression of spirits, alternating, it may be, with severe and throbbing aching over the frontal and temporal regions. Under these conditions patients will tell one that they feel continually wretched and miserable, that life is not worth living, and so on. In this connection let me cite the case of a lady who was put under my care by Dr. Bird, of Carlisle. She complained of dull, aching, general headache, with throbbing at times over the left side of the nose; of a constant feeling of *malaise* and good-for-nothingness and a depression of spirits, and this although her surroundings in the country might have been expected to have an opposite tendency. There was chronic suppuration of the right maxillary antrum, and marked hypertrophy of the posterior end of the left inferior turbinal. The antrum had been drained through the alveolus three years previously without benefit to the local or to the general condition. The radical operation on the right antrum, with appropriate treatment of the left inferior turbinal, was followed by a complete disappearance of the headache and other symptoms, and now she describes herself as not having felt so well and cheerful for years.

A similar case, which, however, was complicated by severe nasal obstruction, the result of polypi, was that of a lady who came to see me from South Ayrshire. Although living amid healthy and pleasant surroundings she complained of the same combination of symptoms — headache, wretchedness, and depression of spirits. Operation on the right frontal sinus and on both maxillary antra, which were the seat of disease, was followed by the same satisfactory result.

The headache is not always confined to the side on which the nasal disease is situated, though exacerbations may be located to this side. In a case of left antral disease, probably due to dental caries, on which I lately operated, the headache was, however, strictly of the hemicrania variety, practically constant, and at times severe. A week after the operation it disappeared, and has not returned.

Another patient described the headache as frequent, usually frontal, sometimes occipital, with periods of drowsiness, and with always a feeling of *malaise*. There was almost complete nasal obstruction from cystic enlargement of both middle turbinals, with polypoidal degeneration of the mucous membrane covering them. Removal of these disclosed chronic suppuration of the antrum and ethmoidal cells on both sides.

The result, as regards the head symptoms, after the carrying out of radical surgical methods on these cavities, was altogether happy.

Let me describe another case, as in it all the three reasons to which I have previously referred could probably be invoked as the cause of the headache and the accompanying distressing symptoms of which complaint was made.

This patient was referred to me by Dr. Altham, of Penrith. She complained, *inter alia*, of constant dull pain all over the head, worse on the top, with occasional attacks of acute throbbing aching in the supraorbital region on both sides, and with tenderness on pressure. She was always in a very depressed state of mind. There were polypi present in both nostrils, growing from the middle meatus. Ultimately all the accessory nasal cavities on both sides were found to be affected with chronic suppurative disease. These were all freely opened and treated, with the gratifying result of the disappearance of the headache.

To sum up this interesting and important connection, the most common form of headache in chronic suppuration of the accessory spaces of the nose is dull and constant, is felt over the head generally, and is accompanied by depression of spirits and a disinclination for exertion. If the disease is localised to one cavity, or to one side, there may be, in addition or alone, pain, recurring or constant, over the supraorbital area on that side, more rarely over the malar and infraorbital region. The localisation of the headache is by no means directly indicative of the cavity involved. When there is, as there often is, concurrent nasal obstruction, or when the pus is retained under pressure in one or more of the spaces, the character of the headache may be altered, or localised tenderness may be added.

As will have been gathered from the cases cited, the result of the surgical treatment of the sinus condition is, with reference to the headache, most satisfactory.

Before leaving this part of the subject I would mention that a sudden attack of very severe headache, arising in the course of chronic accessory sinus disease, should lead us to think of the onset of meningeal complication, rare though it be, and to adopt active surgical measures without delay.

Headache of a less distressing character, though often very persistent, is also experienced with disease and abnormalities of other parts of the nasal fossæ. If these should directly, or indirectly, exert pressure on the middle meatal region, the result would approximate to that obtained in disease of

this part interfering with its patency. A deflection of the septum, a large septal spur, or polypi may act thus. Decided hypertrophy of the inferior turbinal may have the same effect. But, as a rule, this latter common form of nasal obstruction does not give rise to acute pain in the head. The headache caused by it, dull in character, is frequently located in the occipital region. I have, however, seen a case in which a very much hypertrophied posterior end of the inferior turbinal caused pain over that side of the head so severe as to prevent the man following his occupation; at anyrate, its removal, about two years ago, has been followed by no return of the pain.

All surgical dealings, however slight, with the interior of the nose give rise to headache of varying degrees of severity, dull or throbbing, and usually frontal. This results from the acute congestion of the mucous membrane of the various channels and cavities, and passes off with the abatement of this condition.

In nasal obstruction due to growths in the naso-pharynx it is not uncommon to have patients complain of a sensation of tightness about the head. Children affected with adenoids sometimes remark on this—a feeling of “muzziness,” as I have heard it described. Young subjects with these growths often suffer from more severe headaches on mental exertion, a point worth remembering. Indeed, recurring headache in a child should suggest to the practitioner an examination of the naso-pharynx.

Malignant disease, it is only necessary to mention, may give rise to very distressing pains in the head generally, as well as localised to the seat of the tumour. The greater tendency of malignant than of non-malignant disease to cause pressure on, and irritation of, nerve trunks, and so to produce both direct and indirect phenomena, is well recognised. The pain may, however, be due to extension of the growth to the membranes of the brain. It is at times of a most agonising nature, as in the case of a youth under my care, in whom there was inoperable malignant disease of the right maxillary antrum.

The appropriate treatment of nasal headache follows from the apprehension of its actual cause. In uncomplicated cases of congestion, or acute inflammation of the mucous membrane, local treatment in the shape of sprays of adrenalin chloride (1 in 10,000), menthol in parolein, and so on, or alkaline douches, give relief till the membrane returns to its normal state. Cocaine, so frequently prescribed, is, in my opinion, best left alone, unless as an application by the medical

attendant himself. The internal administration of the drugs usually prescribed in headache need not be omitted.

In conclusion, let me emphasise the advisability of never looking upon "headache" as finality; and, in seeking for its cause, a careful examination of the various parts of the nose should not be neglected, even when there are no symptoms directly pointing to that organ.

CASE OF MIXED-CELLED LEUKÆMIA.¹

By LEONARD FINDLAY, M.D.

J. D., a boy, æt. 11 years, was admitted to the Glasgow Royal Infirmary on 16th September, 1905, under the care of Dr. M'Vail (to whom I am indebted for the clinical notes), suffering from general weakness, pallor, and a skin eruption.

According to his mother's account, he had always been a pale, but apparently healthy, child. He took ill about six weeks prior to admission, when a rash, composed of small red spots, suddenly appeared all over his body, and at this time numerous small, hard lumps, having the size of green peas, were first noticed on both sides of his neck. He soon after complained of dysphagia, and developed a cough. The mother states that "his throat seemed skinned," and a doctor, who saw him at this time, suspected diphtheria. The dysphagia persisted for a fortnight, when it suddenly disappeared, and in other two weeks, excepting for the presence of the rash, he seemed in his usual health.

During this illness he had never been fevered, his bowels were regular, there never had been any joint trouble, and no hæmorrhages had occurred. He returned to school, but very shortly afterwards lost strength, and this rapidly increasing in severity, he was taken to hospital.

The family history is good, and devoid of any rheumatic taint.

On admission to hospital he was extremely anæmic, and a petechial eruption was present on the trunk and limbs. There was no œdema anywhere, nor was there any swelling or tenderness of the joints. The heart was not enlarged. Over the pulmonic area a soft, blowing, ventricular systolic murmur

¹ From the Pathological Laboratory of the University and Western Infirmary, Glasgow.

was audible. He had a frequent cough, but physical examination of the lungs revealed nothing abnormal. There was no apparent enlargement of either the liver or spleen. The urine was normal. During his residence in hospital there was no rise in temperature, nor was there any evidence of hæmorrhage other than the petechial eruption. Patient gradually became weaker, and died on 21st September, five days after his admission to hospital.

The blood was examined on his admission to hospital, when the following facts were noted:—

Hæmoglobin,	15 per cent.
Red blood corpuscles,	1,500,000 per c.mm. (30 per cent.)
White blood corpuscles,	40,000 per c.mm.

Blood films were made at the same time, and handed to me for examination.

Differential counts.—

- (a) Heat-fixed film stained with Ehrlich's triple fluid, 1,000 leucocytes counted.

Neutrophile polymorphonuclears,	2·8 per cent (1,120 per c.mm.)
Neutrophile myelocytes,	60·4 „ (24,160 „)
Eosinophile myelocytes,	0·2 „ (80 „)
Small lymphocytes,	24·9 „ (9,960 „)
Large lymphocytes,	11·7 „ (4,680 „)

100·0

- (b) Film treated with Jenner's fluid, 500 leucocytes counted.

Neutrophile polymorphonuclears,	3·4 per cent (1,360 per c.mm.)
Neutrophile myelocytes,	39·0 „ (15,600 „)
Basophile polymorphonuclears,	0·2 „ (80 „)
Eosinophile myelocytes,	0·4 „ (160 „)
Small lymphocytes,	22·0 „ (8,800 „)
Large lymphocytes,	35·0 „ (14,000 „)

100·0

In films stained with Ehrlich's triple fluid the red cells vary somewhat in size, and in many instances are rather deficient in hæmoglobin. On counting 15,000 leucocytes only 3 nucleated red blood corpuscles, all of the normoblastic type, are encountered.

The majority of the white cells are neutrophilic myelocytes, varying in size from that of a red blood corpuscle to quite twice that magnitude, and showing considerable differences as

regards the degree of granulation. Sometimes the nucleus is completely surrounded by a fairly broad band of cytoplasm containing neutrophilic granulations, while in other instances these are very scanty, and limited to a very small arc of the surrounding protoplasm. One very striking feature in many of these cells is the accumulation of the granules into more or less large irregular masses. The nuclei of these cells are relatively large, of a pale uniform appearance, and, in many instances, have one or two slight indentations, but frankly transitional forms are very scanty. Cells with eosinophilic granulations are rather few in number.

Of the non-granular elements two distinct types can be distinguished. Some are very small, and of a fairly uniform size, with a diameter about half that of a red blood corpuscle. They have a relatively large and circularly-shaped nucleus, which stains more deeply with the methyl green than any other cell in the blood. These have been classed as small lymphocytes in the differential count.

The other variety, which is in a much smaller proportion, varies, like the myelocyte, much in shape and size. It also has a relatively large nucleus, which, however, is distinctly paler than that of the smaller type, and in many instances assumes the shape and staining characteristics of the myelocyte. Some are as large as medium-sized myelocytes, while others are slightly smaller than a red blood corpuscle. No hyaline cells are observed.

In films treated with Jenner's fluid the most striking feature is the much smaller proportion of granular cells. Of the non-granular elements it is the large form which is increased, this variety numbering 35 per cent instead of 11 per cent, as in the Ehrlich film, while the proportion of the small lymphocytes is practically unaltered. In addition to the number of granular cells being distinctly less, the granulation in each individual cell is much fainter. The nucleus occupies a relatively large portion of the cell, and in many instances shows slight indentations. It has a pale homogeneous colour, and is surrounded by a more or less narrow band of protoplasm. At that portion of the circumference where the granules are present the band of protoplasm is broad, while where devoid of granulations it is narrow, and shows a strong affinity for the basic elements of the mixture. Sometimes the amount of granular material is exceedingly scanty, and the large pale nucleus is almost entirely surrounded by a narrow band of markedly basophile protoplasm, which, like that of the lymphocyte, is ductile, and drawn out into little tags. Between this

undoubted myelocyte and the large non-granular cell there is absolutely no difference, excepting for the presence of granulations, and all gradations between the two forms are met with. They both vary in size, have a relatively large homogeneous, pale staining, and slightly indented nucleus, surrounded by protoplasm which is markedly basophile in the absence of granulations.

The smaller variety of the non-granular cell, that which we have termed the small lymphocyte, appears, perhaps, on the whole, a little larger than in the heat-fixed film, but it is still most uniform in size and shape, and has a circular nucleus surrounded by a narrow band of basophile protoplasm, with its edges in many instances fringed.

*Summary of post-mortem examination.*¹—The body is that of a pale, anæmic child. All the organs are pale. The cardiac valves are competent and free from disease. The blood-clot is green in colour. The lungs are mottled from numerous hæmorrhagic areas, which, on microscopic examination, are found to be small hæmorrhagic infarctions. In those examined the obstructed vessel could not be seen, and, from the amount of cellular infiltration in places, they were evidently of some duration. The spleen is not enlarged. Its structure is, to a certain extent, obscured by distension of the pulp with myelocytes. Malpighian bodies are unrecognisable as such, but lymphocytes are scattered about throughout the pulp and stroma. The liver is moderately enlarged, and minute examination reveals extensive fatty degeneration and some leucocytic (lymphocytes and myelocytes) infiltration of the portal areas. The kidneys merely show a slight degree of catarrh. The lymphatic glands in the mesentery are slightly enlarged, and show changes similar to those met with in lymphatic leukæmia. In section, they have a more or less uniform appearance, with the lymphocytes more densely packed towards the capsule. Throughout the gland are small areas of infiltration by both neutrophile and eosinophile myelocytes. The femur-marrow is pale and firm. Microscopically, it shows great leucoblastic proliferation, the fat being almost entirely replaced by a leucocytic tissue. In many of the cells no granulations can be detected; nevertheless, from their nuclear and protoplasmic characters, they are probably of the nature of myelocytes. One notable feature is the moderate abundance of eosinophile cells in comparison with

¹ For this I am indebted to the kindness of Dr. M'Laren, who also kindly gave me portions of the various tissues for histological examination.

the scantiness of this cell from the circulating blood. Films of the marrow are rather unsatisfactory, but in those treated with Jenner's fluid there is noted the presence of the non-granular myelocyte in the proportion of about one-third.

Remarks.—So far as the blood examination of the above case is concerned, the condition is one in which there is a great absolute increase of both the granular and non-granular leucocytes.

The granular cells, which number 63·5 per cent, are almost entirely neutrophilic myelocytes. Of the non-granular cells two types are observed. The smaller cell is quite distinct from the larger variety, and conforms in all its features to the small lymphocyte. Though the relative proportion of this cell is not disturbed, there is a sufficient absolute increase (9,960 instead of 2,500 per c.mm.) to be suggestive of lymphatic leukæmia. As regards the nature of the larger non-granular cell there may be some difference of opinion, but, whatever the conclusions come to, it alters little the main issues of the case. Some of them may be large lymphocytes developed from adenoid tissue, and thus further warrant the diagnosis of a lymphatic element in the case. That the majority are of this nature, however, I very much doubt. As previously mentioned, this cell varies much in size and shape, and has, as a rule, a diameter equal to that of a medium-sized myelocyte. The nucleus is relatively large, and frequently presents slight indentations. In the films stained with Jenner's fluid no difference, except for the absence of granulations, can be detected between these cells (60 per cent of which are, in fact, myelocytes, as shown by Ehrlich's method of staining) and the myelocytes, and, moreover, undoubted transition forms between the two varieties can be seen. Consequently, I am of opinion that the majority, if not all, of these large non-granular cells are non-granular or embryonic myelocytes, and are evidence of the gravity of the myelogenous lesion.

Correlating the pathological lesions with the blood changes, we note a very marked leucoblastic hyperplasia of the femur-marrow, which, with the flooding of the blood with myelocytes, make an unequivocal picture of myelogenous leukæmia. Though in the clinical report there is no mention made of enlarged lymphatic glands, the mother of the boy stated that at the commencement of the illness numerous small lumps like beans appeared on both sides of the neck; and most certainly I received for histological examination a mesenteric gland

which, as regards size, was not within normal limits. Microscopically, too, this gland was distinctly abnormal, presenting, as it did, marked lymphocytic hypertrophy as is seen in lymphatic leukæmia. In this connection it must be remembered that in acute cases of lymphatic leukæmia glandular enlargement is not a prominent feature, and even in chronic cases the glands fluctuate so in size as at times to almost escape detection.

In conclusion, then, there seems no doubt, not only from the condition of the blood during life but also from the pathological findings, that we are dealing here with a hyperplasia of both the myeloid and adenoid tissues.

In spite of Hutchison's¹ recent suggestion that in future cases of leukæmia will be classed according to the kind of cell in the blood, viz., lymphocytic, myelocytic, or mixed, irrespective entirely of the situation of the pathological changes, it seems to me all-important to decide as to the nature and origin of the different leucocytes in any mixed leukæmia, in order to differentiate a pseudo-mixed from a true-mixed leukæmia. This simple classification would, to my mind, rather retard than further progress in the study of leukæmia. Following Ehrlich, one usually distinguishes two main types—the lymphatic and myelogenous—absolutely distinct from one another, both as regards etiology and pathology, at least so far as present knowledge goes. Of late, however, there has been raised the question of a mixed condition, one in which the blood at least presents the characters of both these diseases, and many cases warranting such an idea have been reported. In perhaps the majority of these cases, the unusual blood picture has been due to the appearance of the non-granular or embryonic myelocyte in a severe case of myelogenous leukæmia: in Wilkinson's case,² which was ordinary myelogenic to begin with, but later on assumed a mixed-celled type, we have a good example. Browning³ and Simon⁴ have also reported similar cases. Browning describes transition forms between the granular and the non-granular cell, which is merely the embryonic myelocyte or undifferentiated leucoblast, a cell normally present only in very small

¹ R. Hutchison, "Goulstonian Lectures," *Lancet*, 14th May, 1904, p. 1333.

² Wilkinson, *Lancet*, 20th June, 1903, p. 1739.

³ C. H. Browning, *Lancet*, 19th August, 1905.

⁴ Simon, *American Journal of the Medical Sciences*, 1903, vol. **xxiv**, p. 984.

numbers in the adult marrow. The unusual blood picture in my case can be partly, but not wholly, accounted for by the appearance of this undifferentiated leucoblast.

In a case of lymphatic leukæmia, a mixed-celled blood picture has been caused by a disturbance of the bone-marrow as a result of its infiltration with lymphocytes.¹ But such an explanation will not suffice for the present case, for nowhere in the marrow is there a hint of lymphocytic infiltration.

It is impossible to dogmatise as to which tissue became primarily hyperplastic in this case. Reference must here be made to the small areas of infiltration by granular cells in the lymph glands, and it is just possible that their presence may have called forth the lymphocytic reaction, with a subsequent absolute increase of lymphocytes in the blood. Against this idea, however, is the fact, mentioned by Muir,² that collections of myelocytes are often found towards the periphery of the lymph glands in myelogenous leukæmia, and yet a lymphocytosis is practically unknown in this condition. On the other hand, it is well known that tuberculosis of lymphatic tissue may, by its irritation, produce a slight lymphocytosis. If this myelocytic infiltration be the explanation of the presence of the excessive number of lymphocytes in the blood, and it is a not improbable one, then it may be questioned whether we are really entitled to call this a case of "true mixed leukæmia." We cannot escape from the fact that it is a case of myelogenous leukæmia. But just as the term "myelogenous leukæmia" indicates something more than mere myeloid hyperplasia, so "lymphatic leukæmia" signifies more than adenoid hyperplasia, and, while the lymphatic increase might appear to justify us in designating this a case of lymphatic leukæmia, such a diagnosis may be questioned, if it be proved, as I am here inclined to believe, that the lymphocytic increase is but the result of the infiltration of the glands with myelocytes.

Of cases similar to the one presently described, I can only find in the literature one example. It is recorded by Fowler,³ and occurred in a female child, aged 5 years. There was enlargement of the different superficial sets of lymphatic glands, and of both the liver and spleen. Examination of the blood gave the following results:—

Red cells,	2,610,000 per c.mm.
White cells,	240,800 „

¹ Bradford and Shaw, *Medico-Chirurgical Transactions*, vol. lxxxi, p. 386.

² R. Muir, Clifford Allbutt's *System of Medicine*, 1898, vol. v, p. 643.

³ J. S. Fowler, *International Clinics*, vol. iii, 13th series, p. 217.

Differential count.—

Small lymphocytes, .	10·2	per cent (26,896 per c.mm.)	
Large lymphocytes, .	34·4	„ (82,835·2	„)
Lymphoid cells, .	15·9	„ (38,287·2	„)
Polynuclears, .	16·3	„ (39,250·4	„)
Myelocytes, .	17·0	„ (40,936·0	„)

From the above the similarity to the blood picture in my case is evident. Here there is also a great (much greater than in my case) absolute increase in the number of lymphocytes, with the presence of numerous myelocytes, and the lymphoid cell or undifferentiated leucoblast.

Fowler describes the presence of transition forms between the lymphoid cells and the myelocytes, and, while considering the case one of mixed leukæmia, thinks that it strongly supports the idea that the large non-granular lymphoid cell may be the ancestor of all the leucocytes. Unfortunately there was no *post-mortem* examination of the case, and consequently it is impossible to speak definitely as regards the origin of the different leucocytes. It is highly probable that the case was similar to mine, in that both the myeloid and lymphatic tissues were hypertrophied, but further than that, without a histological examination, one cannot go.

Obituary.

JOHN CAMERON, M.D. GLASG., F.R.C.P.

DR. JOHN CAMERON, who died a few weeks ago at his home in Liverpool, at the age of 88, was for many years one of the principal physicians of that city. He was born in London, and studied medicine in Dublin and Glasgow. He became L.R.C.S.E. in 1839, M.D. of Glasgow University in 1843, M.R.C.P. in 1859, and F.R.C.P. in 1873. He lectured for a time on medical jurisprudence, and afterwards on the practice of medicine in the Liverpool Royal Infirmary School of Medicine. He was for long an office-bearer in the Liverpool Medical Institution, and in 1899 a meeting was organised to celebrate the diamond jubilee of his membership of that body. As Dr. Cameron published little, he was not well known among the profession in Glasgow.

JOHN GILMOUR KERR, M.B., C.M., J.P.

WE regret to have to announce the death on the 17th ult. of Dr. J. G. Kerr, of Cuninock, at the age of 39. Dr. Kerr, who was educated at Neilston Parish School and Hutcheson's Grammar School, Glasgow, graduated in Medicine at the University of Glasgow in 1889. Shortly afterwards he went to Cuninock as assistant to the late Dr. James Lawrence, and was ultimately assumed as partner. On the death of Dr. Lawrence, twelve years ago, Dr. Kerr succeeded to the whole of the extensive practice and appointments. About two years ago he fell into bad health, but afterwards improved to an unexpected degree, and his friends hoped that in time he would make a complete recovery. Within the past few months, however, his ailment (pernicious anæmia) again gained ground, and it was felt that he could not live long. He was, some time ago, made a J.P. for Ayrshire, but he took no active part in public affairs. He was an enthusiast in his profession, and by constant reading kept himself fully abreast of medical progress. He is survived by a widow and daughter, who, with a large circle of patients and friends, will mourn his loss.

CURRENT TOPICS.

THE GLASGOW MEDICAL SCHOOL.

IN view of the near approach of the winter session, which opens on the 18th inst., the following particulars will be found of use to intending students:—

UNIVERSITY OF GLASGOW.

The University grants four degrees in medicine. Of these, the M.B. and Ch.B. must be taken together.

Before commencing his medical studies, the student must pass the preliminary examination. This comprises (1) English, (2) Latin, (3) Elementary Mathematics, (4) Greek, French, or German. In the case of a candidate whose native language is not English, certain modifications may be made in the preliminary examination.

The certificate of having passed the above examination must, along with satisfactory evidence of the applicant having attained the age of sixteen years, be transmitted to James Robertson, Esq., 54 George Square, Edinburgh, so that the intending student may be registered in the books of the General Medical Council. Certain other examinations, or a degree in Arts or in Science from a recognised University, are accepted as exempting from the preliminary examination.

The degrees of M.B. and Ch.B. will not be conferred unless the candidate has been registered in the books of the General Medical Council for at least five years previously. Two of the five years of medical study must be spent at the University. There are four professional examinations. Of these, the first comprises Botany, Zoology, Chemistry, and Physics. Candidates are admitted to all or any two of these subjects at any examination held after they have attended a full course in each of the subjects professed. Those who have passed the first professional examination may be admitted to the second (Anatomy, Physiology, and *Materia Medica* and Therapeutics) at the end of the third winter session. The third examination (Pathology, Medical Jurisprudence, and Public Health) may be taken at the end of the fourth winter session. The final examination is open to those who have passed the third, and who have completed their fifth year of study. The examination comprises Medicine, Surgery, and Obstetrics and Gynæcology. Every candidate for the final examination must submit a declaration, in his own handwriting, that he has completed his twenty-first year, or that he will have completed it on or before the day of graduation, and that he will not be, on the day of graduation, under articles of apprenticeship to any surgeon or other master.

The first three examinations are held in the last week of September and of March; the final examination is held in June. Class fees vary; for the majority, the fee is £4, 4s.

Clinical courses are usually taken in the Western Infirmary. A list of the different clinics will be found below.

Classes for Women are held in Queen Margaret College and in the Royal Infirmary.

The higher degree of M.D. may be taken by anyone who holds the Bachelor's degree in medicine and surgery, on his complying with certain conditions. These are: That he must be of the age of twenty-four years or upwards; that he produces a certificate of having been engaged subsequent to having received the degrees of M.B. and Ch.B. for at least one year in attendance in the medical wards of an hospital, or in

scientific work bearing directly on his profession, such as is conducted in the Research Laboratories of the University, or in the military or naval medical services, or for at least two years in practice other than practice restricted to surgery. The candidate must pass an examination in clinical medicine, and must submit a thesis, for the approval of the Faculty of Medicine, on any branch of knowledge comprised in the second, third, or fourth professional examination for M.B. and Ch.B., excepting subjects which are exclusively surgical. Similarly, the degree of Ch.M. may be obtained by examination in clinical surgery and the presentation of a thesis on a subject not exclusively medical.

Full particulars of courses, fees, dates of examination, &c., will be found in the *University Calendar* (Messrs. MacLehose & Sons), or may be obtained from W. I. Addison, Esq., Assistant Clerk of Senate, the University.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

(1) *Triple Qualification* (L.R.C.P.E., L.R.C.S.E., & L.F.P.S.G.).—In conjunction with the Royal Colleges of Physicians and of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow grants a license to practise. This triple qualification admits to the *Medical Register*, and those possessing it are eligible for the public services. The course of study and the examinations are similar to those for the University degrees, but the class fees are lower. Qualifying courses are held in Anderson's College Medical School and in St. Mungo's College,¹ and particulars may be obtained from the respective Deans. Regulations for the triple qualification may be had from Alex. Duncan, Esq., LL.D., Secretary to the Faculty of Physicians and Surgeons, 242 St. Vincent Street, Glasgow.

(2) *Fellowship*.—This fellowship is open to registered practitioners of not less than 24 years of age, and of not less than two years' standing. The candidate must pass an examination in medicine or surgery, and in any one of the following subjects which he may select:—Anatomy, Physiology, Pathology, Midwifery, Diseases of Women, Medical Jurisprudence, Ophthalmic Surgery, Aural, Laryngeal and Nasal Surgery; Dental Surgery, State Medicine, Psychological Medicine, Dermatology.

Fee, £50; to one who is already a licentiate of the Faculty,

¹ Many of these courses are recognised by the University as qualifying for graduation. For special regulations, see the respective *Calendars*.

£25. If the candidate does not desire to be eligible to hold office, the fees are £30 and £15 respectively.

EXTRA-MURAL SCHOOLS.

Anderson's College Medical School.—This school is situated in Dumbarton Road, adjoining the main entrance gate of the Western Infirmary. The classes qualify for the M.B. and the Triple Qualification.

St. Mungo's College.—The school is in the grounds of the Royal Infirmary, Castle Street, and the students, as a rule, attend the clinics in the Infirmary. The classes are recognised by the University. They qualify also for the Triple Qualification.

Western Medical School (University Avenue).—Courses in Medicine, Surgery, and Ophthalmology are conducted, which qualify for the M.B. and the Triple Qualification. Tutorial classes in other subjects of the curriculum are also held in the school. The students receive their clinical instruction in the Western Infirmary.

CLINICS.

Western Infirmary (adjoining the University), 416 beds.—Visit hour, 9 A.M. daily; Outdoor Department, 2 P.M. Every student shall pay a fee of £10, 10s. for hospital attendance, and, in addition, £3, 3s. for each winter session, and £2, 2s. for each summer session of clinical instruction. Students who have completed their clinical course elsewhere shall be permitted to enter for a six months' course of the *hospital only* on payment of a fee of £2, 2s. The fees should be paid to the Superintendent, Dr. D. J. Mackintosh, M.V.O.

Royal Infirmary (St. Mungo's College adjoins), 618 beds.—Visit hours, as at Western Infirmary. Fees, including hospital practice and clinical lectures, for six months, £6, 6s.; three months, £3, 3s. The total fee is £21. Superintendent, Dr. J. Maxtone Thom.

Victoria Infirmary (Langside), 180 beds.—For particulars as to the clinical courses, apply to the Superintendent, Dr. D. Otto Macgregor.

Royal Hospital for Sick Children (Garnethill), 74 beds.—Outdoor Department, 11.30 A.M. Fee, £1, 1s. for twelve months (Indoor and Outdoor). For information, apply to Resident Medical Officer.

Eye Infirmary (174 Berkeley Street, and 80 Charlotte

Street).—Hour of visit, 1 P.M. daily. Fee for six months, £1, 1s.; for twelve months, £2, 2s.

Ophthalmic Institution (126 West Regent Street).—Hour of visit, 2 P.M. Fee for a qualifying course, £1, 1s.

Insanity.—During the summer session, a course of lectures is given in the University, and clinical instruction in the Royal Asylum, Gartnavel. Fee for the combined course, £2, 2s.

At Gartloch Asylum, Gartcosh, senior medical students may obtain appointments as resident clinical clerks. The appointments are for six months, and those holding them can attend classes in Glasgow in the earlier part of the day. Applications should be sent to the Medical Superintendent, Dr. W. A. Parker.

Fevers.—Clinical instruction is given in Belvidere and in Ruchill Hospital. Fee, for a course extending over ten weeks (once a week), £1, 1s.

Maternity Hospital.—Clinical instruction in midwifery is given at the hospital, and there are exceptional facilities for practical work in the Outdoor Department.

There are also hospitals for diseases of the skin and of the ear, in which clinical instruction is given.

ROYAL INFIRMARY APPOINTMENTS.—Dr. Campbell S. Marshall has been promoted to be Dispensary Physician in room of Dr. John W. Findlay, resigned. Miss A. Louise M'Iroy, M.D., and Mr. Wm. D. Macfarlane, M.B., have been appointed Extra Dispensary Gynæcologists.

GLASGOW ROYAL INFIRMARY POST-GRADUATE CLASSES.—The autumn course of post-graduate instruction was inaugurated on 4th September by a lecture which was delivered by Major George Lamb, M.D.Glasg., I.M.S., Director of the Pasteur Institute of India, and Chief of the Royal Commission on Plague. The Lord Provost occupied the chair, and a large audience assembled in the Pathological Lecture Room of the infirmary to hear Major Lamb's address on "The Etiology of Plague."

The Lord Provost expressed the pleasure it gave him to preside, proud as he was of the infirmary, which had kept in the forefront of medical research, and was associated with the names of such men as Lord Lister and Sir William Macewen. But since their immediate connection with the infirmary,

medical science had been making very great progress, so that the student of ten years ago, no matter how brilliant he might have been, unless he had kept himself in close touch with what had been going on, would be in many points left far behind by students who are now only ready for their diplomas. One therefore rejoiced that those who were responsible for the management of the Royal Infirmary, and those who had the gift of teaching and the opportunity of giving lectures and demonstrations, had arranged this scheme of post-graduate classes, so that busy medical men in practice might be able to learn the results of the latest research, and to see the most recent methods in practice. The scheme of classes had been specially devised for men in practice in Glasgow and the West of Scotland, and it was to be hoped that the spirit of enthusiasm and the desire to impart knowledge, which had been the motive power behind the movement, would lead these classes to be taken advantage of by large numbers. He believed that medical men who desired to keep in touch with current research would be glad of the opportunity of attending these classes, and that their doing so would raise them in the eyes of their friends and their patients. The general public were also deeply interested in the scheme. It would attract to the infirmary men who desired to have the opportunity of giving lectures and demonstrations, and it would be an advantage to have men of progressive minds associated with that noble institution.

Major Lamb's address will probably be published in one of the weekly medical journals.

GLASGOW TRAINING HOME FOR NURSES.—Homes for the treatment of private patients are now a recognised institution—they are scattered throughout the city—and the present generation of the public and of the profession take them as a matter of course. But up to the early seventies it was very different. At that time "there were," to quote Sir Hector Cameron in the recently-published *Thirty-second Annual Report of the Glasgow Training Home for Nurses*, "no institutions of this sort in Glasgow, and even . . . no nurses in private—at all events worthy of the name—that is to say, no trained nurses." It was this latter deficiency which appealed to Miss M'Alpin; and her primary aim was to provide the public with "really efficient trained nurses." The home was a means to this end, and was, as it were, a secondary consideration. After much thinking, and asking advice of friends, Miss M'Alpin embarked on her undertaking. Premises

were obtained in St. George's Road, and were opened in 1874; and young women of strictly proven character were received for training.

With regard to Miss M'Alpin's second aim, her idea was to provide a place where patients of a certain class could be treated. These patients were either of moderate means—means which, while sufficient to place them above the hospital class, were not such as to give them sick-room accommodation in their houses—or they were young people in situations in Glasgow, living in lodgings, where they could not lie up and get the necessary attention if ill. It was felt that it would be a real charity if such patients were looked after, and that their self-respect would be maintained by the fact that they contributed a certain sum towards the expenses of their residence in the home. The balance of the expense was to be made up by subscriptions from the charitable. This was a very important move; and we believe it presents the solution of the problem of "hospital abuse" of which we nowadays hear so much.

As time went on, well-to-do people recognised the advantages to be derived from being treated and nursed in an institution for the purpose; and the undertaking developed in the direction of providing private rooms for such patients at suitable charges. The home was removed to Renfrew Street, where it is at present. This part of the work does not directly concern us. With the charitable side of the training home, however, it is otherwise. The requirements of modern progress in surgery—and it is chiefly in surgical cases that the necessity for a home is felt—have made alterations in the building necessary from time to time; but it was at last felt that further patching was economically false, and the directors determined that the home must be rebuilt. With this end in view, Miss M'Alpin collected privately subscriptions amounting to over £6,000 to form the nucleus of a building fund, and plans were prepared under the friendly guidance of Dr. Mackintosh, of the Western Infirmary. In these plans due provision is made for "wards" for those who are able to pay only a small charge. Everything is ready to go on with the work, except that the directors still require £7,000 to complete the sum necessary. In the *Report* to which we have already referred, an appeal is made to the public for funds. We feel that such an appeal is amply justified, as the facts disclosed in the *Report* show that the home is doing "a truly charitable work for the community." We would merely mention that during the past eleven years

not less than 32½ per cent of the patients were treated free of all charge, or at a fee below cost to the institution.

RETIRAL OF MISS M'ALPIN.—Early last month Miss Agnes M'Alpin bid farewell to the nursing home of which she was the founder and honorary superintendent. When it is remembered that the home has entered on the thirty-third year of its existence, it will be felt that Miss M'Alpin has well earned her right to lay down the burden of office. During those years she has given her services gratuitously, and we think all must see how, in an unobtrusive way, she has been a public benefactor. Our good wishes go out to her and to her sister, by whom she was so ably assisted; and we trust that both may long be spared to enjoy a happy rest after their labours on behalf of the community.

EYESIGHT OF GLASGOW CHILDREN: REPORT TO THE SCHOOL BOARD.—Dr. H. Wright Thomson, dispensary ophthalmic surgeon to the Glasgow Royal Infirmary, and assistant surgeon to the Ophthalmic Institution, has submitted to the School Board of Glasgow a report on an investigation he has made regarding the eyesight of the children attending the schools of the Board. Dr. Thomson first explains the methods adopted in testing, and then gives an exhaustive analysis of the results obtained. The teachers tested the visual acuteness of 52,493 children, and found 18,565, or 35 per cent, to be below what is regarded as the normal standard. Dr. Thomson examined the 18,565 by retinoscopy, and reduced the number of defectives to 11,209, or 21 per cent of the whole. The percentage with ocular defects was fairly constant in all the schools, but the percentage with defective vision was very variable—*i.e.*, many children with normal eyes were found to see badly. The proportion of these cases was highest in the poor and closely-built districts and in old schools, and was lowest in the better class schools and in those near the outskirts of the city. The proportion of such cases in the country schools of Chryston and Cumbernauld was much lower than in any of the city schools; and in industrial schools, where the children are fed at school, the proportion was lower than among Board school children of a corresponding social class. Defective vision, apart from ocular defect, seems to be due partly to want of training of the eyes for distant objects and partly to exhaustion of the eyes, which is easily induced when work is carried on in bad light, or when the nutrition of the children is defective

from bad feeding and unhealthy surroundings. Regarding training of the eyes for distant objects, much might be done in the infant department by the total abolition of sewing, which is definitely hurtful to such young eyes, and the substitution of competitive games involving the recognition of small objects at a distance of twenty feet or more. Teachers can determine the visual acuteness, but they cannot decide whether or not an ocular defect is present. Visual acuteness, especially among poor children, is variable at different times. Teachers should have access to sight-testing materials at all times, and should have the opportunity of referring suspected cases for medical opinion. An annual testing by the teachers, followed by medical inspection of the children found defective, would soon cause all existing defects to be corrected, and would lead to the detection of those which develop during school life.

GLASGOW HEALTH REPORT.—The report to the Corporation by the Medical Officer of Health, for the year 1905, was issued last month. It is a very elaborate document of 218 pages, and deals with the vital statistics of the city in an exhaustive manner.

Exclusive of Kinning Park, which was added to the city in the end of the year, the population within the municipal boundary is estimated at 785,474, giving a total of 61·9 per acre. The death-rate was 17·5 per 1,000, and the birth-rate 30·8. Infantile deaths per 1,000 births numbered 131. Marriages numbered 6,968, representing a rate of 8·6 per 1,000, which is the lowest registered since 1891-95. The birth-rate is the lowest recorded, and the death-rate is fractionally lower than that in 1904. Infantile deaths are, per 1,000 births, 14 fewer than in 1904, and 11 fewer than in 1903.

Compared with several large towns the infantile mortality in 1895-1904 and in 1905 is as follows:—

	1895-1904.	1905.
Glasgow,	148	131
Edinburgh,	139	133
Dundee,	170	133
Aberdeen,	146	140
Paisley,	131	116
Greenock,	136	116
London,	155	131
Liverpool,	186	153
Manchester,	187	157
Birmingham,	188	154

During the year, 19,647 cases of infectious disease were registered, representing a rate equal to 25 per 1,000 of the population, which is 4 per 1,000 more than in 1904. Only 4 cases of small-pox were registered, and 1 death occurred. Diphtheria cases numbered 726, compared with 647 in 1904, and the death-rate rose from 14.1 to 14.7 per 1,000 of the population. It is stated that the city is experiencing a rising tide of diphtheria prevalence, and the suggestion is made that the question of the prophylactic use of antitoxin in already invaded households is worthy of consideration. Enteric fever cases showed a marked shrinkage, and the death-rate was lower than in any year since 1891. Scarlet fever was also much less prevalent, but measles showed a great increase, the number of cases, 12,329, being considerably in excess of those of any previous year of the decade.

Of the deaths registered, 1,129 were due to phthisis, representing a death-rate of 1.437 per 1,000. This is a slight improvement on previous years. The results are given of an enquiry into the social and sanitary conditions of certain cases of phthisis, and the need for more definite action being taken by local authorities is urged. For effective prevention, each case as it occurs should be made the rallying point of administrative action, so that the physical circumstances of faulty structure and defective ventilation, whether in house or workshop, which it reveals, may be remedied.

The need for disinfection of public conveyances, schools, and places of public resort arises from the practice of indiscriminate spitting. Abatement of this practice can only be expected when educational advancement has ensured a more complete attention to the conditions upon which infection depends. Effort is required to secure the ventilation of all places of assembly by measures which will be effective during the time they are in use.

THE SANITARY CONGRESS.—Glasgow and district were well represented at the annual meetings of the Incorporated Sanitary Association of Scotland held at Leith last month. The president was Mr. John Bryce, Burgh Surveyor, Partick, who delivered an address on "Some Sanitary Problems incidental to Populous Centres." Dr. Geo. W. Wilson, Senior Boarding Medical Officer, Greenock, introduced a discussion on "Port Sanitation," and Dr. A. Campbell Munro, Medical Officer of Health for Renfrewshire, dealt with the closure of schools for measles. Ex-Bailie W. F. Anderson, Glasgow, delivered a lecture on "The Wastage of Human Life." Among prominent

Glasgow officials who took part in the discussions were Mr. A. B. McDonald, City Engineer; Mr. Peter Fyfe, Sanitary Inspector; Dr. Wm. Wright, and Dr. John Brownlie. At the annual dinner Mr. Bryce presided over a gathering of 200, Dr. John Wilson, Medical Officer of Health for Lanarkshire, and Ex-Bailie W. F. Anderson, Convener of the Health Committee, Glasgow, being the croupiers. Lord Provost Bilsland, replying to the toast of "The Local Authorities of Scotland," said the feeling was growing that more power should be given to Local Authorities in the matters entrusted to them. There had been great progress both in counties and burghs, and that had been much contributed to by the Sanitary Association.

NEW COMBINATION HOSPITAL AT JOHNSTONE.—Negotiations have now been completed for the erection of a new combination hospital near Johnstone, for the exclusive treatment of small-pox. The hospital is to accommodate Johnstone, Renfrew, and the upper and lower districts of Renfrewshire, embracing a population of 50,000. There are to be sixteen beds, and the cost will be about £1,800. A good site has been secured near Johnstone, on ground belonging to Mr. Speir, of Linwood and Blackston. At the late epidemic the district of Johnstone had no place to which they could send small-pox patients.

NEW PREPARATIONS, &c.

WE have received samples of the following from Burroughs Wellcome & Co., London:—

1. *Tabloid Mistura Alba*.—Each contains—

Magnesium sulphate,	.	.	.	gr. 15 (0·972 gm.)
Magnesium carbonate,	.	.	.	gr. 2½ (0·162 gm.)
Oil of peppermint,	.	.	.	min. ⅞ (0·002 c.c.)

This preparation is a convenient and exact means of administering this efficient stomachic combination. From one to eight may be powdered and taken in water for a dose.

2. *Tabloid Sodium Citrate*, gr. 2 (0·13 gm.).—One may be dissolved in a teaspoonful of water and added to four teaspoonfuls of milk.

3. *Soloid Argyrol*, gr. 1 (0·065 gm.).—One, dissolved in eleven minims of water, gives approximately a 10 per cent solution.

4. *Ophthalmic Tabloid Argyrol*, gr. $\frac{1}{32}$ (0·0027 gm.).

5. *Tabloid Laxative Fruit Pastilles*.—These are pleasantly flavoured, and constitute a most palatable preparation. Each contains gr. 5 extract of senna fruit.

6. *Tabloid Menthol Pastilles*, each containing gr. $\frac{1}{2}$ menthol.

7. *Tabloid Menthol and Eucalyptus Pastilles*, containing gr. $\frac{1}{20}$ menthol and $\frac{1}{2}$ minim oil of eucalyptus.

FROM E. J. Reid & Co., 9 Dunedin House, Basinghall Avenue, London:—

1. *Andouard's Beef in Powder, or Concentrated Beef*, is a light brown powder, almost odourless, and with a very slight taste suggestive of a meat extract. It is recommended that it should be diluted with hot soup, or, according to taste, with water, milk, tea, &c.

2. *Isson, or Saccharated Protoxide of Iron*, is a colourless liquid, with a sweet and slightly astringent taste. It is recommended for anæmia and other forms of debility.

CYLLIN, THE NON-TOXIC BACTERICIDE.—Acting upon a suggestion thrown out by Sir Lauder Brunton in his Croonian Lectures on "The Relation Between Chemical Structure and Physiological Action," Jeyes' Sanitary Compounds Company Ltd., have succeeded in producing from certain members of a new series of oxidised hydrocarbons a disinfectant which they say combines the maximum of efficiency as a bactericide with the minimum of causticity and toxicity to the higher forms of life. They guarantee the new product, Cyllin, to be at least ten times less toxic than carbolic acid, and to have carbolic acid co-efficients, ranging from 10 to 30, as is shown by the following table¹:—

Investigator.	Organism.	Carbolic Acid Co-efficient.
Professors Simpson and Hewlett,	B. pestis, .	34·0
Dr. David Somerville,	B. cholerae (Koch), .	32·3
Professor Wm. Smith and Dr. David Somerville,	B. diphtheria, .	20·0
Professor Klein, F.R.S.,	B. tuberculosis, .	11·0
Lieut.-Colonel Firth, R.A.M.C.,	B. typhosus, .	11·0
Dr. David Somerville,	B. dysenteria (Flexner), .	10·0
Professor Klein, F.R.S.,	Staph. p. aureus, .	9·3

WE have before us a sample of Cyllin syrup, of which the carbolic co-efficient for B. dysenteria (Flexner) is 0·3. The

¹ Since the above results were published the efficiency of Cyllin has been increased; thus the carbolic acid co-efficient for B. typhosus is now guaranteed 13·0.

preparation is very palatable and will be easily taken. It is recommended in doses of 5 to 10 minims for infantile diarrhoea.

MUIRACITHIN (Reitmeyer & Co, 63 Crutched Friars, London, E.C.).—This is a new remedy for sexual impotence whose name is derived from two of its principal constituents—extract of muira-puama and lecithin. It is supplied in the form of silvered pills, of which from three to eight are to be taken daily. Along with the samples of the pills we have received some literature of a very familiar kind, giving cases of cure by this remedy. The printed directions for use indicate the number of pills to be taken and the duration of treatment; and they also emphasise the importance of a suitable diet, sufficiency of sleep, and complete abstinence from alcohol, smoking, and sexual excitement. If a course of Muiracithin is an aid to such an exemplary mode of life, it is not surprising that it does good.

"PAPKERCHIEFS."—These are intended as a substitute for linen pocket handkerchiefs, and are made of a soft paper-like substance which is easily destroyed by fire or in the water-closet. The papkerchiefs are supplied in a holder, in which is a purse-like receptacle for placing those which have been used, previous to destroying them. It is not intended that the holder should be used for longer than one week. We have tested the papkerchiefs, and have found them comfortable to use, and easily disposed of in the way indicated.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1905-1906.

MEETING XI.—2ND MARCH, 1906.

DR. J. GALBRAITH CONNAL *in the Chair.*I.—THE EARLY DISCONTINUANCE OF PACKING IN THE AFTER-TREATMENT OF THE RADICAL MASTOID OPERATION.¹

BY DR. W. S. SYME.

The technique of the operation itself is *secundum artem*. I then split the posterior wall of the membranous meatus, after the method of Panse. The flaps so formed are thinned by the removal of the redundant tissue from their posterior surfaces, and the cavity is packed by way of the meatus. The primary wound over the mastoid is then sutured. At the end of a week the stitches and packing are removed, the dressings are discontinued, and the subsequent treatment consists of the instillation of rectified spirit with 2 per cent carbolic acid three times a day. If the granulations tend to grow too strongly, so as to threaten to cause stenosis of any part of the cavity, I touch them with pure carbolic acid; occasionally I have gently curetted. The part which requires especial attention is the aditus, as a bridge of connective tissue is apt to form across this passage. This method I can confidently recommend in the ordinary run of cases of the radical mastoid operation in adults. Where there is much obstruction of bone, with exposure of the dura and sinus, I sometimes delay the closure of the post-auricular wound for a week or two. With regard to children, I am not so confident as to its advantages. Granulations grow more abundantly in young subjects, and the cavity itself is smaller; and, moreover, the careful inspection of the ear for a few weeks afterwards is necessarily more difficult, so that the risk of stenosis, and of the formation of adhesions preventing a free inspection of the antrum and

¹ Patients shown.

tympanum, and facilitating the production of pockets, is greater. In fact, no routine method is, in my opinion, applicable to children.

Following the method of after-treatment adopted in these cases shown to-night, healing, by which is meant complete cessation of the discharge and epithelialisation of the cavity, takes place in from five to ten weeks. In one of my cases, in which epithelialisation advanced most quickly, I had at the time of the operation plugged the tympanic end of the Eustachian tube with wax to prevent re-infection by that route, and I was inclined to give some of the credit to this. The result is a cavity, freely open to inspection in all its parts, lined by epithelium. The post-auricular scar is, as near as can be, invisible.

As regards the effect on the hearing, this does not differ from that which follows the performance of the radical mastoid operation with the usual more protracted after-treatment. Elsewhere¹ I have put it thus—"In a few cases the hearing is improved, as a rule there is no appreciable difference, rarely it is made worse."

II.—DOUBLE MASTOID EMPYEMA IN A FEMALE, AGED 26.²

By DR. W. S. SYME.

Mastoid empyema occurring on both sides as a result of acute middle-ear disease, although not of rare occurrence, is yet sufficiently unusual to be of itself of some interest. It is, however, rather with reference to the method employed to hasten the after-treatment that I am showing this case.

About the middle of March, 1905, the patient had an attack of measles which confined her to bed for a fortnight. She experienced no pain in her ears, but on getting up she noticed aural discharge on both sides. Two weeks after this a swelling appeared behind the right ear. A week later I saw her for the first time, and incised a large perimastoid abscess and found caries of the mastoid process. A fortnight later (4th May) she was admitted into hospital, and on 6th May I opened the vertical mastoid cells, or rather removed the *débris* and granulations from this region, leaving a large cavity. The sinus and dura were extensively exposed by the destruction of bone, and in one place the dura showed commencing necrosis. The antrum was not opened into. At this time the discharge

¹ *British Medical Journal*, 3rd February, 1906.

² Patient shown.

from the ear had ceased. The cavity in the mastoid was packed. So much for the right ear.

The discharge from the left ear continued, though it was gradually getting less.

On 21st May a swelling appeared behind the left ear, but there was no pain or tenderness.

The vertical cells on this side were opened on 23rd May, through a small carious opening which was found on the outer surface of the bone. On the removal of granulations and *débris* from this aperture, pus, evidently under pressure, escaped, and a large cavity was opened into. Here again the antral cavity was not interfered with. The pus was examined by Dr. Walker, and a pure culture of streptococcus was obtained. The discharge from the ear itself had ceased on 29th May.

On 13th June, *i.e.*, three weeks from the second and about six weeks from the first operation, when the cavity in the bone on the right side was of the size of a small hazel-nut, and on the left side about twice as large, with antiseptic precautions, I filled in these cavities with paraffin of a melting point of 106° F., pouring it in in the liquid state. The edges of the wounds, previously rawed, were brought together by sutures. A week later the wounds had closed and the stitches were removed, and since that time the patient has been quite free from any discomfort in the mastoid regions.

The evident advantages of this method are that it shortens the after-treatment, and that no unsightly depression is left behind the ear. At the same time, it is not applicable to all cases of mastoid empyema, for the simple reason that in many it is impossible to get the cavity aseptic. In such a case, as in another in which I used it, the wound does not heal and the paraffin is extruded *en bloc*. As far as I know, Politzer was the first to adapt this procedure to the ear, though it was used previously in cavities in bones in other parts of the body. At first Politzer introduced the paraffin immediately on the completion of the mastoid operation, but latterly he has, as I did in this case, waited till the cavity is lined with granulations. Writing of this method in the *Wiener Medicinische Wochenschrift* for 23rd July, 1903, he describes fifty-six cases in which it was adopted, and limits its applicability to cases in which the antrum is not opened.

There are other points of interest in this case to which I might be permitted to draw attention. The absence of pain throughout, despite the amount of destruction, is unusual, even where an early erosion occurs in the outer wall of the mastoid.

to relieve the pressure under which the pus in the cells is retained.

It is in agreement with the observations of other observers to obtain a pure culture of streptococcus in these rapidly destructive affections of the mastoid secondary to acute middle-ear suppuration.

I have seen the patient to-day for the first time since she left the hospital about eight months ago. There is a small depression over the right mastoid; that is the side into which the smaller amount of paraffin was introduced. The left side shows no depression, but the edges of the opening in the bone can still be felt. Her hearing now for both sides is $\frac{3}{16}$.

In reply to observations, Dr. Syme said he had no doubt that in this case the period of after-treatment, and of the patient's detention in hospital, had been considerably curtailed by the injection of paraffin. The æsthetic side was a matter of opinion, but to him the usual deep depression behind the ear was distinctly unsightly.

III.—CASE IN WHICH THE RADICAL MASTOID WAS PERFORMED FOR URGENT SYMPTOMS.

BY DR. W. S. SYME.

The patient, a female, aged 48, was seen by me at the end of September, 1904. Her medical man then gave me the following history:—

She has had discharge from the left ear for eighteen years. About four years ago, when she was about four months pregnant, she had severe rigors, during which the bed was shaken violently. The temperature rose as high as 106°. After this had gone on for four days she miscarried. The rigors and temperature continued for some days, but there was no tenderness about the pelvis, and the uterine discharge took a normal course. The patient was confined to bed for three weeks, and then gradually returned to her usual health. She continued well, except for the aural discharge and for frequent headaches, until two months ago, when she began to have attacks of vomiting and vertigo. The vomiting ceased two weeks ago, but the vertigo increased in severity until now she is quite unable to stand by herself. She falls to the left side, and even when in the prone position feels as if she were falling in that direction. The hearing, never very good in that ear, has got much worse during the past two months. The temperature and pulse have shown nothing abnormal.

Examination of the ear.—There is a small amount of purulent discharge in the meatus. The postero-superior part of the membrane is absent, and through the perforation there are granulations to be seen. Watch 0, Rinne neg., with shortened bone condition, Weber, right. The right ear is healthy.

From the history and from the examination of the ear I concluded that the disease had probably advanced to the internal ear, and I also suspected that the middle-ear disease was the causal factor of her former severe illness. Operation was evidently imperatively indicated. The radical mastoid procedure was carried out in the usual way. The posterior wall of the antrum and mastoid process was found to be destroyed to a large extent, and the destruction was continued along the inner wall of the antrum to the region of the external semicircular canal. The rest of the bone was sclerosed, and when one expected, on removing the diseased tissue about the semicircular canal, to pass into the labyrinthine, one was met by a firm hard plate of bone. As nature had evidently striven to raise a barrier against the advance of the disease, I made no further effort to enter the labyrinth. There was no other necrotic focus to be seen on the wall of the inner ear.

Posteriorly, the sinus was exposed to a large extent. It was of a greyish colour, and on palpation was found to be converted into a firm cord. This was easily demonstrable to the medical men who were assisting me. Taken in conjunction with the history of the patient's previous illness it seemed to me that at that time she had had a sinus thrombosis which had undergone spontaneous cure by organisation of the clot.

Altogether, I look upon the case as one of a very chronic nature in which the organisms present showed a low degree of virulence, so that, both as regards the invasion of the internal ear and especially as regards what I take to have been the sinus thrombosis, the defences of the body had met with a large measure of success. In the German *Archives of Diseases of the Ear* for 1904, Zeroni reports a case of a man similar to this as regards the semicircular canal, and in *Les Archives Internationales de Laryngologie, d'Otologie, et de Rhinologie* for January and February of this year, Ferreri discusses at length the way in which hyperplastic processes as a rule prevent the infection of the labyrinth from becoming general.

The patient made an uneventful recovery, except that she had a degree of facial paralysis, as one might almost have anticipated from the position of the disease. The vertigo slowly disappeared, until now she is quite free from it. The

hearing for speech has improved slightly. The watch, Rinne, and Weber are practically the same as before the operation and on testing with Galton's whistle it is seen that perception for the high notes by this ear is lost.

Dr. Galbraith Connal said he had been interested in seeing the results got by early discontinuance of the packing. He had been in the habit of packing the cavity with gauze, but had lately adopted the plan of discontinuing the packing about the third or fourth week, and thereafter giving the patients directions for antiseptic syringing and drying, and with good results. He thought the epithelial lining formed in the cavity quicker than under the old plan of continued packing. Care must be taken to prevent exuberant granulations. In regard to the double mastoid operation, he always approached the question of operation on both mastoids with a feeling of responsibility—not regarding the life of the patient, for the patient's expectation of life was better after the operation than it would be if the patient went about with suppurating ears—but a feeling of responsibility regarding the hearing power. In the majority of cases, after the radical mastoid operation, the hearing was the same as before the operation; in a fair proportion of cases the hearing was improved—in a varying degree. That, however, was a question which could not be settled before the operation, and it was a most important question for the patient. What would be the condition of the hearing after the operation? In *Dr. Syme's* case the question of the hearing was not involved in the operation, as he had cleared out the vertical cells, but had not interfered with the tympanum. In doing the radical mastoid operation, the risk to the hearing was greater, as the middle ear was entered and the ossicles were removed. In a case where there was purulent middle-ear disease on both sides, and it was desirable, but not urgent, to perform the radical operation—other things being equal—he would operate on the side with the more defective hearing. If, after the operation, there was an improvement in the hearing, one could with confidence recommend the patient to have the other side operated on. But if, after operation, there was still very defective hearing, he would be inclined to adopt conservative treatment for the sake of the risk to the hearing. Regarding the injection of paraffin, he thought the deformity was so slight, and so well hidden by the auricles, that the cases where there was a necessity for the injection were very few.

Dr. Syme said he thought that the use of paraffin was justified, as if packing was continued the opening healed up very slowly.

IV.—CASE OF OTITIC EXTRA-DURAL ABSCESS, ASSOCIATED WITH PARALYSIS OF SIXTH CRANIAL NERVE AND DOUBLE OPTIC NEURITIS—WITH REMARKS.

BY DR. J. STODDART BARR.

Dr. Barr's paper will be found as an original article in our issue for August, 1906, at p. 107.

Dr. W. S. Syme said—Dr. Barr's communication is of very great interest from several points of view. It shows the value of the united opinions of the aurist, the oculist, and the physician in the diagnosis of these intracranial complications of middle-ear suppuration. In reference to a case which has been so carefully dealt with, I hesitate to offer any criticism, but I should like to suggest that puncture of the spinal canal might here have been of diagnostic value, not only as regards the disease itself, but also as regards the actual causation of the optic neuritis. I was interested to hear Dr. Barr's opinion as to the rarity of the implication of the sixth nerve. In a long article by Ferreri in the *Archives Internationales de Laryngologie, d'Otologie, et de Rhinologie*, January and February, 1906, on "The Lesions of the Internal Ear consecutive to Suppuration of the Tympanum," he says, referring to the differential diagnosis of labyrinth involvement alone, and this coupled with infection of the cranial cavity in the latter, "There is frequently paresis or paralysis of the abducens and of the vagus, with simultaneous troubles of the eye, the palate, and the corresponding vocal cord." I cannot agree with the opinion that increased cranial pressure *per se* causes optic neuritis, for in a case of extra-dural abscess consequent on middle-ear suppuration, on which I recently operated, although on pressing back the sinus from the necrosed posterior wall of the mastoid a large quantity of pus rushed out, having evidently been under considerable pressure, there was, and Dr. Rowan is my authority for this, no optic neuritis. No doubt the chronicity or otherwise of the abscess, or, in other words, the rate at which the increased pressure has been established, has some influence.

Dr. Inglis Pollock said that in Dr. Barr's case the double optic neuritis appeared to be due to pressure. There were undoubtedly cases of double optic neuritis in which no definite causation could be determined.

Dr. Arch. Young said that some degree of optic neuritis had long been recognised as an almost constant factor in the intracranial complications of chronic otitis media, and might be toxic or due to pressure. The only correct or rational therapeutic measure in chronic middle-ear disease, with the slightest suspicion of intracranial complication, is to directly follow up the channel of infection through the mastoid focus. He also referred to a case of extra-dural suppuration around the lateral sinus, where abundant spirochætes were found in the pus.

Dr. Primrose said that the mere size of an abscess was of much less importance than its situation in causing pressure symptoms.

Dr. Barr, in replying, said that pressure could not be the sole cause. The abscess here was small, and toxæmia might bring on optic neuritis. Optic neuritis was present only in about 50 per cent of ear cases with intracranial complications.



FIG. 1.

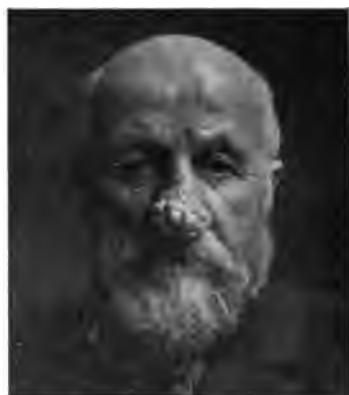


FIG. 2.

BEFORE OPERATION.

V.—CASE OF LIPOMA NASI.

BY DR. J. STODDART BARR.

This patient, a man of 65 years, came under my notice on 23rd October, 1905. He was then suffering from the condition called rhinophyma (acne rosacea hypertrophica), or what is more commonly known as lipoma nasi. It began two and a half years ago and has steadily increased in size, so that for the last year, owing to his unsightly appearance, the patient shunned the light of day, and only ventured forth under cover of darkness.

All his days the patient had been a martyr to constipation, and for many years his nose had been the seat of a skin eruption, probably acne. On 2nd November, 1905, I operated, Dr. Edington kindly giving me his valuable assistance. After the patient was anæsthetised, I injected subcutaneously here and there round the base of the swelling a few minims of a solution composed of equal parts of a 1 per cent solution of cocaine and 1 in 1,000 adrenalin hydrochloride. After waiting a few minutes, I removed the hypertrophied portions of the nose in slices, with the aid of a broad-bladed and very sharp scalpel. During this procedure, as a precautionary measure against cutting too deeply, I kept a finger in the nostril of the side being dealt with. In this manner, without much difficulty and with comparatively little hæmorrhage, which latter I attribute to the cocaine and adrenalin injections, I managed to remove the growth and remodel the nose.



FIG. 3.



FIG. 4.

AFTER OPERATION.

Healing took place slowly, but in about six weeks the raw surface was completely epithelialised over. It was then noticed that the edge of the right ala was somewhat thicker than on the other side. After injecting a few minims of the mixture of cocaine and adrenalin, I removed a thin slice of tissue from that region, which improved greatly the appearance of the nose. This soon healed, and the final result is seen to-night.

Microscopic section.—Fibrous tissue and sebaceous glands.

VI.—DERMOIDS OF THE ORBIT.

BY DR. W. B. INGLIS POLLOCK.

Dr. Inglis Pollock read a paper upon dermoids of the orbit, and related a case in which he had removed a small dermoid from the orbit of a boy of 12 years of age. It appeared typical in all respects but that two-thirds of the circumference was occupied by granulation tissue, with a large number of giant-cells and embedded hair.


[This paper appeared *in extenso* in the *Ophthalmic Review* for June, 1906.]

VII.—CARD SPECIMENS.

A. BY DR. WM. J. RICHARD.

Two specimens of rupture of the aorta.

1. A. M'L., æt. 64, had made no complaint of illness, and was working with gardener. On afternoon of 25th September, immediately after dinner, he had retired to w.c. He had lit his pipe when he was heard to groan. The warder went in to see what was wrong, and found him quite dead.

Post-mortem examination.—Entire surface of body showed extreme pallor. Both lungs emphysematous. Slight adhesions. Pericardium much distended, and found to contain large quantity of blood-clot and serous fluid. Long tear in aortic wall noted (shaped like this, ) just above valve. It is 2½ inches long. Surrounding tissues are found infiltrated with blood. Patch of calcareous degeneration a little above the tear. Heart muscle flabby, aortic valves much enlarged, and orifice dilated. Mitral orifice admits four fingers; curtains of valves thickened. Wall of left ventricle thickened; cavity dilated. Stomach slightly distended. Kidneys show marked cirrhosis; also numerous cysts. Slight cirrhosis of liver also noted.

2. Mrs. C. T. S., æt. 81 years, on afternoon of 4th October, shortly after dinner, had gone to the lavatory to wash a handkerchief. Another inmate, who also was in the lavatory, heard a sound, and, on turning round, found the woman had fallen backwards on the floor. She vomited a little, and almost immediately after she died. She had not made any complaint of illness for some months previous, and even then she only complained of rheumatic pains in her legs.

Post-mortem examination.—Pericardial sac was found to

contain large quantity of blood-clot, and a rupture of aorta was noted about a quarter of an inch from its origin. The external coat showed a tear a quarter of an inch long, while internal coat showed a tear 2 inches long. Left ventricle was hypertrophied. Mitral valves calcareous; aortic valves also showed calcareous patches. Kidneys had very adherent capsules and numerous small cysts. Lungs were slightly adherent. Nothing else abnormal was noted.

B. BY DR. HUGH MLAREN.

1. An enlarged ovary infiltrated with lime salts.
2. A large gastric ulcer which had penetrated the stomach wall, but in which extension to the peritoneal cavity was prevented by adhesion to a mass of adipose tissue.

C. BY DR. JAMES SCOTT.

A minute aneurysm at the origin of the pulmonary artery, and a papilloma of one of the pulmonic curtains.

A description of this specimen will be published as an original article in a future issue of the *Journal*.

REVIEWS.

Observations on the Labyrinth of Certain Animals. By ALBERT A. GRAY, M.D., F.R.S.E. Proceedings of the Royal Society. B. Volume 78.

DR. GRAY'S work on the labyrinth of the seal and of man is well known. The present contribution to the subject is a communication made to the Royal Society in February last. In it the author contrasts the size of the perilymphatic space of the semicircular canals in man and the mammals generally. He also mentions differences in the cochleæ and in the size of the otoliths. He describes in detail the labyrinths of the lion, Indian gazelle, three-toed sloth, and kangaroo; also of the crested screamer and the ostrich.

The paper is a record of much careful work, and to

anatomists and aural surgeons it is of profound interest. The paper is illustrated by reproductions of the author's photographs.

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology, compiled for the New Sydenham Society (a continuation of the "Atlas of Pathology") chiefly from Original Sources. Fasciculus XXIV bis, being XVII of The Clinical Atlas: Fractures and Dislocations of the Upper Extremity, illustrated chiefly by Radiographs. London: The New Sydenham Society. 1905.

THE present fasciculus of the *Clinical Atlas* is mainly, though not wholly, taken up with fractures and dislocations of the upper extremity. It contains eleven plates illustrative of the following conditions:—Injuries of the lower epiphysis of the humerus in young persons (three figures); dislocation with complicated fracture of the lower epiphysis (two plates); united fracture of the lowest part of the humerus; fracture of the lower part of the humerus in bad position; recent transverse fracture of the humerus; fracture of both bones of the fore-arm (two plates); multiple fractures of fore-arm bones; congenital absence of the lower part of the ulna; and partial dislocation of the foot, with fracture. The radiographs come out beautifully, and we may gratefully contemplate the immense benefits that have accrued to surgical practice through the discovery of the *x*-rays. A page at the end of the fasciculus is devoted to correspondence and other addenda.

Catarrhal Fevers, commonly Called Colds: Their Causes, Consequences, Control, and Cure. By R. PROSSER WHITE, M.D., M.R.C.S. London: H. K. Lewis. 1906.

DR. WHITE has brought considerable powers of diligence, investigation, and comparison to the production of this book of 120 octavo pages. In everyday life the most of people talk glibly and confidently about "catching a cold," of a "cold settling on the lungs," and the necessity for "taking care against cold." We probably interpret Dr. White aright in saying that his thesis is—"Catarrhal fever may be defined as a specific infective febrile rhinitis, associated with a putative bacillus (Cautley's), and, later, by pyogenic bacteria and cocci."

"The contagium is conveyable, directly or indirectly." "It is inoculated on the mucous membrane." "The contagia must be in a certain state of virulence." "The dose must be large enough, and the receiver susceptible."

Our author argues that as Arctic voyagers do not readily catch cold, and as people who have been in crowded assemblies do take cold more frequently than their cousins in the open country, the element of infection is no mystery, and there is further proof for the infective theory in the different instances given of four or five persons being simultaneously ill with catarrh in one household.

Dr. White gives a hint to nurses and doctors, especially to the former, who should not, when ill with cold in the head, attend on the sick. Further, the prevention of colds lies in the removal of certain personal conditions, and in remaining outside of close, stuffy rooms, and avoiding the affectionate practice of osculation. Air excreta should be removed as promptly as body excreta. Give a wide berth to a person sneezing. The body should be fortified by a sufficient dietary and correct living, and the blood especially must be kept healthy.

Dr. White does not decry drug treatment when the disease arrives, and he prescribes a nasal ointment of resorcin, supra-renal gland, chloretone, and lard. There are also recommended "sudorifics and going to bed." This reminds one of George Coleman's story of Will Waddell's illness in *Lodgings for Single Gentlemen*. Further on, the patient is to get a quinine tonic.

The book is well printed, with wide margins, and is neatly bound in crimson cloth.

Health of the Nation: Organ of the National League for Physical Education and Improvement. No. 1. London: Rees, Limited.

THIS new candidate for popular favour appears at an opportune time, when, with the earnest and practical speech on "Infantile Mortality" of the Right Hon. John Burns, M.P., at the Westminster Conference, a fillip has been given to the study of national physical conditions and the urgent necessity for improvement. The League is non-political, and its aim is to deal with the treatment of (a) infants, (b) school children, and (c) lads and girls who have left school. Truly a sufficient programme, for the education and health of the future man and woman are of primary importance.

The number is nearly all occupied, but not drearily, by an article of Dr. Arthur Shadwell on "Foundations of National Health in Large Cities," and two parliamentary speeches on the medical inspection of schools. There is room for such a monthly periodical as this, if it will contain a variety of practical and pungent short essays and hints. Above all, an optimistic feeling must be maintained.

The Calcutta Medical Journal. No. 1. Calcutta: The Medical Club.

THE interests of young Britons who seek their fortunes and sometimes permanent residences in India, the large standing army there, and the duty of the empire to all our fellow-subjects, render welcome any addition to the educational and hygienic forces of Indian society. The *Calcutta Medical Journal* makes a fair start, and, along with nine pages of practical selections, presents six original articles written by native gentlemen. There are also a book review department, and a record of the Club's "Transactions." Let the *Journal* keep clear of general politics, and a happy future is in all likelihood before it.

Natality and Fecundity. By C. J. LEWIS, D.Sc. (Pub. Health), M.D., and J. NORMAN LEWIS, F.I.A., F.F.A. Edinburgh: Oliver & Boyd. 1905.

THIS work of modest dimensions has involved an amount of time and labour which is out of all proportions to the apparent outcome, but for which all praise must be accorded to the authors. Within the small compass of 170 pages has been embraced the research and clerical work of years. Its object was to discover the facts regarding natality and fecundity of a population the needed statistical data for which were existent, but had not, up till the time when the authors undertook the work, been utilised for the purpose. Such unique data were obtainable from the birth registers of Scotland for the year 1855, founded as these were on the schedules laid down in the first Registration Act for Scotland of 1854, but which were modified as to extent of enquiry by the Amending Act of 1856.

The details demanded in the original Act in respect of births were unique as to their comprehensiveness. The authors tackled the task of collaborating these details for every birth which occurred in Scotland in 1855. Upon these data, therefore, the work is mainly constructed, although the authors do not fail to utilise comparable information from other and wider sources.

The authors wisely proceed, at the outset of their enquiry, to define the terms used by them in the book, as, for example, *fertility* is defined as the "quantity of ascertained productiveness," *fecundity* as the "quality of ascertained productiveness," and *isogen* as "equality in the probability of a birth."

The total births in Scotland in 1855 amounted to 93,369, of which 85,964 were legitimate and 7,405 were illegitimate births. Of the total legitimate births, 44,010 were of the male and 41,954 of the female sex. The former, that is, the total legitimate births, were the offspring of 84,971 wives, the total illegitimate births, of 7,329 mothers. The ages of the wives ranged from 15 to 58 years of age, the year of age showing the largest number of "wives-mothers" being 30 to 31. The well-known tendency in statistical data for persons, especially women, to give their ages in round numbers, is exhibited in the data for 1855, and compels the authors to offer the opinion that the maternal age of 28 may reasonably be taken as the age at which the largest number of wives-mothers added to the population. The mean age of all wives-mothers in 1855 was found to be 30·578 years, and of the total wives-mothers at all ages, 53 per cent was under that mean, and 47 per cent was over it. Dividing the parturient ages of wives-mothers (15 to 58 years) into quinquennial groups, and calculating the percentage of total births into each of these periods, it was found that the age-group 25 to 29 supplied 28·12 per cent of the whole legitimate births, and the group 30 to 34, 24·2 per cent, both together making 52·32 per cent of the total.

The ages of the "husbands-fathers" ranged from 17 to 86 years, and the year of age which gave the largest number of births was 30, the next highest being 28 years. The mean age of 84,560 husband-fathers was 33·94 years, the number under that mean forming 38·6 per cent, and the number over it, 61·4 per cent of the total number. This, it will be observed, is the reverse of the wives-mothers in this regard. The authors point out, therefore, that the bulk of the children born is of fathers whose age is over 30·5 years and of mothers under that age. From other facts provided by the returns, it appears

that one child was born for every 10·5 women at child-bearing ages, and that 9·5 children were born annually for every 100 women, and that the highest comparable fertility by women was exhibited in the age-group 30 to 34, the next being the group 25 to 29, and the next 35 to 39. The comparative fertility of the total female population was greatest in the decade 25 to 34 years, and showed a decline after the age of 34.

Male fertility was highest in the age-group 30 to 34 years, and next highest in the group 35 to 39, and not ten years earlier as in the other sex. The data with relation to the comparative fecundity of the total married population—which are (1) total number of wives at child-bearing ages, viz., 398,307, and (2) number of fruitful wives (84,971), showed that one wife in five (or 21 per cent) was annually fruitful, that wives between the ages of 15 and 19 were most fecund (over 51 per cent of these proved fruitful in any year), that there was a falling-off in the age-group 20 to 24 of 8 per cent, and a steady decline in each subsequent quinquennium. Of husbands, the number of whom was 425,747, and of husband-fathers, 84,971, the fecundity exhibited (1) that there were 5 husbands for each husband-father, and (2) that of each 100 husbands, 19·96 annually became fathers of living children, and (3) that the fecundity at each group of ages was higher than that of wives at similar groups of ages.

Taking the sexes together in the married state, numbering in all 438,024, 84,971 added one or more live children to the population in 1855, or, as the authors put it, "one in every 5·15 couples produce a living child yearly, or that 19·4 out of every 100 couples have a satisfactory birth transaction within the year."

The incidence of multiple births in 1855 shows that there were only eleven triplet births, one of which was illegitimate, i.e., once in 8,497 legitimate deliveries, or once in 8,391 if we include the illegitimate case. Since that year till 1901 inclusive, the authors show that triple births numbered 116 per million confinements. Twin births in 1855 occurred once in every 87·06 confinements. The female age at which the largest number of twin births took place was 30, the next being 35, the greatest number of fathers being over 30 years of age. No relation between fecundity of wives and fertility in twins was revealed by the data of 1855.

The authors state that the illegitimate birth-rate should not be calculated as at present, but should be a rate per 1,000 based upon the number of unmarried women, or women not

living in the conjugal state, at child-bearing ages. In this we entirely agree. The illegitimate birth-rate in 1855 was 16·38 per 1,000.

The sex-distribution of first births shows, as is usual, an excess of males over females, there being 429 more males than females in the 16,325 firstborn. So far as the mother is concerned, there is an excess of male firstborn as described up till the age of 40, but beyond that age the disparity disappears; and in respect of the father, excess of males over females is the rule for ages under 50 years, but over that age it disappears.

The chapters dealing with masculinity and sterility are most interesting. By the former expression, the authors mean the proportional preponderance of males over females at birth, the masculinity being positive where the males per 1,000 females are in excess, and negative when they fall below that figure. They point out that the masculinity of a people rarely exceeds 1,100 (that is, 1,100 males to 1,000 females at birth) or falls below 900 (that is, 100 less males per 1,000 females). Masculinity differs in different nations. Greece and Roumania have the highest at the present time, France is very low, and the United Kingdom shows only a medium masculinity. If we differentiate between England and Wales on the one hand, and Scotland on the other, it appears that in the former in 1851-1860 it was 1,046, the birth-rate being then 34·1, and in 1891-1900, 1,036 with a birth-rate of 29·9, whereas in Scotland for the same respective periods, the figures are 1,057 and 34·1, and 1,050 and 30·2. In France for the same periods, the respective figures are 1,056 and 26·7, and 1,041 and 22·2. Although the authors have painstakingly followed many routes whereby to find out if more light might be thrown upon the reasons for masculinity, we fear they have not been able to advance our knowledge in that particular.

The chapter on sterility, which is dealt with solely from the female point of view, is interesting. The expression sterility, as used in the book, simply denotes the absence of living registrable issue during conjugal existence at ages suitable for reproduction. The data for 1855 showed that 17·8 per cent of the wives were sterile, or, put in another way, one in 5·62 appeared in the register of marriages but not in the register of births. If, however, the number of wives married at ages above 45 years is deducted, the percentage became lowered to 16·45 per cent, or, in other words, one in every six wives proved infertile. According to the data for 1855, it would appear that, taking all ages together, when a woman has been

married five years without issue, the probability that she will not conceive at all is about 17 to 1.

While such a book as this forms interesting reading to those interested in statistics, we fear that the amount of labour expended thereon will not be appreciated by the bulk of readers, except as a source of reference. At the same time, it is a record, once and for all, bravely undertaken and successfully accomplished, of statistics which, but for the energy of the authors, would in all likelihood have remained buried in the archives of the Registrar-General for Scotland.

Essentials of Gynecology arranged in the form of Questions and Answers. By EDWIN B. CRAGIN, M.D. Sixth Edition. By FRANK S. MATHEWS, M.D. London: Henry Kimpton. 1906.

THIS is an excellent little book of about two hundred pages. It is mostly a compilation from such works as those of Hart and Barbour, Schroeder and Thomas. There are fifty-seven illustrations, and the text is clear and concise. It will be found useful by the student while revising his work before examination, and by the busy general practitioner.

On page 172 "Chorbak" should be "Chrobak."

Gynaecological Diagnosis: A Manual for Students and Practitioners. By ARTHUR E. GILES, M.D., B.Sc.Lond., F.R.C.S.Ed., M.R.C.P.Lond. With 35 Original Illustrations. London: Baillière, Tindall & Cox. 1906.

IN his introduction the author says, "I have aimed at presenting the subject of diagnosis from a different standpoint from that usually adopted in books on the diseases of women. The characteristic feature of text-book description is this: given a disease or disorder, what are its symptoms? I propose to proceed in the inverse order, and to ask: given certain symptoms, what disorder or disease may we expect to find?"

The first part of the book deals with case-taking, the methods of examination, the use of instruments, and the general significance of gynaecological symptoms and interpretation of physical signs. The author gives a very careful description of the ordinary bimanual examination, illustrated by four figures,

but he makes no reference to the recto-abdominal method or the combined rectal and vaginal examination. The instruments he describes the use of are the speculum, sound, and swab-holders. He makes no mention of the volsella.

In Part II he has a chapter devoted to each of the leading symptoms—amenorrhœa, pain, hæmorrhage, discharge, pruritis, dyspareunia, sterility, repeated abortions, bearing-down, bowel or bladder disturbance, swelling of the vulva, and swelling of the abdomen. In the diagnosis of early pregnancy we have failed to find Hegar's sign mentioned. Again, in dealing with cancer as a cause of hæmorrhage, he speaks of dilating and removing a portion, but he does not indicate how the dilatation is to be effected or what instruments are to be used to obtain the piece of tissue for examination. In his preface he mentions that the "diagnosis is carried only up to the point to which the practitioner may be expected to go," and where microscopical examination is necessary this is only for the pathological expert, but surely an ordinary practitioner should be able to obtain a specimen of tissue, say from the interior of the uterus in a suspected case of cancer, and submit it to a pathological expert. As a matter of fact, the author indicates that this should be done, but he neglects to say how the specimen is to be obtained. An examiner would certainly expect a student to know how to obtain a specimen from the interior of the uterus in suspected cancer of the body.

The book is carefully written, and will be found very useful both to students and practitioners.

Surface Anatomy. By RICHARD J. A. BERRY, M.D. With 46 Illustrations. Edinburgh and London: William Green & Sons. 1906.

To most medical students of the present day Treves' *Surgical Applied Anatomy* is a familiar friend, and they are doubtless aware, through its pages, of the importance of a knowledge of surface-markings. We have always held that to successfully expound the practical application of anatomy, the teacher must be an experienced clinician. It is only such a one that knows what anatomical points are of special importance from their relation to diseased processes. Professor Berry has, however, confined himself to a department of the subject of applied anatomy which is well within the province of the professional anatomist. In this volume he deals with surface

anatomy, or topography, and he may be said to present the reader with a reliable guide to this part of the subject, viz., the bony points, the lines of the more important arteries, and the topography of the viscera.

The various regions of the body are taken up systematically—head and neck, thorax, abdomen, upper and lower extremities, while special chapters are devoted to the pelvic viscera and perineum in the male and female. Much of what appears in works on applied anatomy has been omitted, but we are sure that the student who takes this book into the wards and uses it as the author intends will be rewarded. He will by its aid acquire a knowledge of surface anatomy which will enable him to appreciate more fully than usual the significance of many clinical signs. He will, further, be stimulated to study again, and in a more enlightened spirit, the once dry details of dissecting-room anatomy.

The text is clear and concise, the printing is excellent, and the matter is illustrated by a number of good figures and diagrams. We congratulate Professor Berry on the production of a book which deserves to be widely used.

Ellis's Demonstrations of Anatomy. By C. ADDISON, M.D.
London: Smith, Elder & Co. 1905.

THE advances in the domain of anatomical research have necessitated the addition of new matter in this twelfth edition of Ellis's standard work. Opportunity has been taken to recast the whole, and, as a result, its value as a concise and serviceable text-book for students and practitioners has been considerably enhanced. A new feature is that of illustration in colour. We note in Fig. 16 (p. 40) that the Median Cephalic vein has been erroneously labelled Median Basilic. The new edition will uphold the well-merited popularity of this book.

Essentials of Surface Anatomy. By CHAS. R. WHITTAKER,
L.R.C.S., L.R.C.P. London: J. & A. Churchill. 1906.

RARELY does the title of a book express so accurately the nature of its contents as in the one now before us. This slim volume of 40 pages "is intended for those who have no time to peruse the many excellent treatises on this important branch

of anatomical study." We have here the marrow of the subject, and as a help to rapid revision we think that Mr. Whittaker's little book would be hard to beat.

The text is interleaved, doubtless with the intention of affording the reader an opportunity of adding notes and diagrams.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By WALTER K. HUNTER, M.D., D.Sc.

Experimental Arterio-Sclerosis by Adrenalin Chloride: The Effect of Potassium Iodide. By W. T. Cummings and P. S. Stout (*University of Penn. Med. Bull.*, July, 1906).—It is accepted that arterio-sclerosis may be produced in rabbits by the intravenous injection of adrenalin, and the object of this inquiry was to note if the administration of iodide of potassium would have any effect in the way of inhibiting the action of the adrenalin. In the first series of experiments five rabbits were injected, two of them receiving adrenalin alone, and the other three potassium iodide as well. The injections were given every second day. The adrenalin, commencing with doses of 0.1 c.c. (Parke, Davis & Co.'s adrenalin chloride 1 in 1,000), was gradually increased to 0.5 c.c., the maximum amount for any animal being 6.4 c.c. The dose of iodide began with 0.012 gm., and was increased till 0.23 gm. was given, the maximum amount being 2.43 gm. The results, as shown by *post-mortem* examination, were negative in all of these cases.

In the second series there were six rabbits. All received adrenalin, the first two adrenalin alone, the third and fourth adrenalin and iodide, and the fifth and sixth adrenalin only, till the first two animals gave signs of arterial disease, when iodide was also given. The inoculations in this series were given twice weekly, commencing with 0.1 c.c. adrenalin, and increased by 0.1 c.c. every second injection. Where iodide was given, the dose was 0.012 gm., and increased in the same way as the adrenalin. The first rabbit died in thirty-three days, having received 3.1 c.c. of adrenalin, and showing, *post-mortem*, small atheromatous plaques in the arch of the aorta. The second rabbit died in forty-five days, having had 5.5 c.c. of adrenalin. The arch of the aorta here also showed atheroma. The third rabbit died in forty-one days, and the fourth rabbit in forty-two days, each having had 5.5 c.c. adrenalin and 0.73 gm. iodide. In neither of these cases was there any atheroma. The fifth and sixth rabbits were killed after sixty-six days, each having received 18.1 c.c. of adrenalin, and after the forty-fifth day doses of iodide of 0.024 gm., increased till a total of 1.5 gm. had been given. The fifth rabbit showed, *post-mortem*, extensive atheroma of the aorta, extending from the aortic cusps to the bifurcation of the vessel. In the sixth rabbit the disease was less pronounced. The above observations go to show that iodide of potassium may be useful in preventing the development of arterio-sclerosis, but it seems of little aid in promoting absorption after sclerosis has developed. Fuller details are promised in a future paper.

Vaccination against Tuberculosis by way of the Alimentary Tract.—MM. Calmette and Guérin have reported to the Académie des Sciences (*Le Progrès Médical*, 23rd June, 1906) the results of their attempts to vaccinate animals by way of the alimentary tract. Two calves were given, by means of an oesophageal tube, 5 centigrammes of a sterile culture of tubercle bacilli, and, forty-five days later, 25 centigrammes of a similar culture. After an interval of four months, food containing fresh tuberculous material was given to these two animals, and, in addition, to two other control animals. Thirty-two days later all the animals were tested by means of tuberculin, and while the control animals gave a definite reaction, those previously vaccinated remained unaffected. The authors have also shown that tubercle bacilli killed by heat pass through the intestinal wall just as readily as the living bacilli, and, like them, may be recovered from the mesenteric and other lymphatic glands. It is suggested, then, that vaccination against tuberculosis may be carried out by way of the alimentary tract, and that this is the best method of vaccinating infants against the possible infection of tuberculous milk.

Regeneration of the Spinal Cord in Man.—MM. Manuesco and Minca have reported to the Société de Biologie (*Le Progrès Médical*, 30th June, 1906) three cases of compression of the spinal cord where regeneration of the injured nerve fibres was very definitely demonstrated. In two of the cases the compression was due to a fracture or dislocation of the first lumbar vertebra; in the third case there was a tumour compressing the cord in its upper dorsal region. In all the three cases there could be seen, both above and below the lesion, newly-formed nerve fibres arranged in bundles, or forming a plexus, as well as numerous terminal fibres with club-shaped endings.

Brachioptegia of Cerebellar Type, and Rhythmical Tremor. By H. C. Mandsley (*Intercolonial Med. Journ. of Australasia*, 20th June, 1906).—The patient was a man, aged 66. Suddenly one afternoon, while standing about in his timber yard, he felt a giddiness on the right side of the head and down the right side of the body. On trying to walk he fell down on his left side, his legs giving way under him. The giddiness passed off at once, but he could not rise from the ground. He could move the right arm and leg, but he could not guide them properly so as to stand up. When helped to rise there was much difficulty in walking, owing to the uselessness of his right leg. He was taken at once to the hospital, and on admission it was noted that he moved the right arm and leg fairly well, and that the movements of the muscles of the tongue and face were normal.

Three days after the attack there was still some weakness in the right arm. No actual paralysis could be determined, but all the movements of this limb were weaker than those of the left. There was some stiffness in both legs, being most marked in the right hip and thigh. The deep reflexes were present, equal on both sides, and do not seem to have been exaggerated. No sensory disturbances were made out.

Two days later occasional twitching movements appeared in the right thigh, and, the day after that again, involuntary rhythmical tremors in the muscles of the right shoulder girdle, in the flexors and extensors of the elbow, slightly in the muscles of the hip and knee-joint. The movements were of the nature of a clonus, there being alternate flexions and extensions of opposing groups of muscles, and the rate of the tremor being uniform (180 per minute) for each set of movements. The tremor entirely ceased when the trunk and shoulder girdle and arms were supported with pillows so that there was as little tension on the muscles as possible. When this support was removed the tremor at once returned. An effort of will seemed to stop the tremor, but only for a short time, and when it returned it seemed of greater amplitude and of wider distribution. Voluntary movements of the limbs were greatly hindered by the tremor. Mental excitement also increased the movements. There seemed some inco-ordination for movements of the right arm; but there was no loss of sense of position of this limb, and weights were readily appreciated. He

could stand on either foot with his eyes closed. The gait was neither hemiplegic, spastic, nor ataxic.

Seven weeks after the onset of the tremor the condition was much as just described. The distribution of the movements was rather wider, and the left side was sometimes also involved, but the wrists, fingers, toes, ankles, and knee-joints remained unaffected. There was noted also atheroma of both radial arteries, hypertrophy of the left ventricle, and a systolic murmur at aortic and mitral areas. The urine was free from albumen and sugar.

The author considers the condition as due to a partial lesion in the cerebellar co-ordinating regions or tracts. The absence of any sensory disturbance (muscle sense, &c.) suggests that the inco-ordination of the right arm was cerebellar; and the normal condition of the deep reflexes (the plantar reflexes were always flexor) rather excludes a cerebral lesion. As to the tremor, it is regarded as a clonus, similar in origin to ankle or knee clonus, and due to a hypertonus of the muscles taking part in the various movements. There was no evidence of the spinal reflex arc being involved, but it is recognised that the spinal centres receive from the higher centres, not only inhibitory, but also adjuvant impulses. In the present case it is suggested that there is a preponderance of adjuvant impulses reaching the spinal centres for the muscles of the shoulder girdle, &c., and so accounting for the hypertonus of these muscles. Experiments on animals are quoted to show that normally inhibitory influences are constantly passing from the thalamus to the anterior horns of the cord, and adjuvant impulses from Deiter's nucleus by the Deiter's spinal tract to the same cells. These two influences normally balance each other, and so we have the tone of muscle found in health. If either influence preponderate, then the tone is greater or less than in health, as the case may be. Deiter's nucleus in turn seems to be under the controlling influence of the cortex of the cerebellar lateral lobe and vermis, and this control would seem to be largely inhibitory in function. The author places the lesion in this case in these controlling fibres passing from the cerebellum to Deiter's nucleus. This means that normal inhibitory impulses are not passing to Deiter's nucleus, and that, as a result, this nucleus sends an excess of adjuvant impulses to certain of the anterior horn cells. As a result muscle tone is increased in the muscle fibres supplied by these cells, and the final result is that the hypertonus of the muscles is so great that the least tension on these muscles is sufficient to set up clonus—the condition from which this patient is suffering.

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B., C.M., F.R.S.E.

Case of Inoperable Cancer of the Fauces, the Pharynx, the Tongue, and the Cervical Glands that has shown marked Amelioration after Treatment for Ten Weeks with a Bacterial Vaccine of Micrococcus Neoformans.—Dr. Scanes Spicer, at the Laryngological Society of London in June of this year, showed a case of a man, aged 75, suffering from malignant disease of the fauces, pharynx, tongue, and glands. The case was regarded as inoperable, and, a portion of the tumour having been removed and pronounced carcinoma, the patient was sent to the inoculation department with a view to treatment with a bacterial vaccine by Professor A. E. Wright. The patient is still under treatment, and; while a cure is not claimed, a very marked improvement in the local and general condition of the patient is recorded. The case is still under observation.

Professor A. E. Wright made a statement at the meeting with regard to the case. Doyen, of Paris, regards the organism which he calls micrococcus

neoformans as the specific cause of cancer. Whether this be so or not, Metchnikoff and others have confirmed the statement that a characteristic microbe can be obtained by culture from tumours.

Professor Wright further stated that he had recently begun the task of investigating the opsonic and agglutinating power of the victims of malignant disease with respect to the micrococcus neoformans. He summed up the position of matters at the present time thus:—"It will suffice to say with respect to the agglutinating and opsonic powers of the victims of malignant disease that these differ from the normal (1) in the fact that in some they are lower, and in others they are much higher; (2) in the fact that the opsonic index is in some cases constantly fluctuating, as happens in cases of bacterial infection associated with constitutional disturbance; and (3) in the fact that phagocytosis is in some cases obtained with the serum after it has been heated to 60° C. for ten minutes. We have here, it seems to me, ground for concluding that infection by the micrococcus neoformans is one of the factors which must be reckoned with in connection with malignant disease.

"The case Dr. Scanes Spicer has shown is one of a first batch of five cases in connection with which we have undertaken inoculations with a vaccine consisting of a sterilised and enumerated culture of the micrococcus neoformans.

"It is the only case in which we have had a striking result. Of the other four cases two have already died. Of the two others, one appears to be quite stationary, while the other shows marked signs of improvement."

Deviations of the Nasal Septum.—Deviations of the septum are sometimes of a very simple kind, but in many cases no more troublesome problem can be presented to those engaged in remedying conditions in nasal stenosis.

The subject has once more been discussed by Dr. St. Clair Thomson in the Laryngological Section of the Toronto meeting of the British Medical Association, and a paper was published by him in the *Lancet* this year (28th July). As far as can be judged, Dr. St. Clair Thomson advocates Killian's method generally. The operation is by no means an easy one in every case, but in the discussion referred to, in which Drs. Freer, M'Donagh, and others took part, it was evident that considerable progress has been made towards simplification. Some, like Dr. Roe, advised the consideration of the correction of other abnormal conditions of the nasal passages before touching the septum. The President (Dr. Dundas Grant) said, in summing up, that the probable outcome of the discussion would be a judicious eclecticism.—(*British Medical Journal*, 8th September.)

Dr. Price Brown, of Toronto (*American Laryngological Association*, 31st May), discusses the difficulty of the operation above referred to and suggests a method of his own. In his earlier attempts he made two longitudinal cuts from before backwards through the septum, on the convex side and about half an inch apart. By this means he was able to force the central portion and the adjacent margins to their normal position. To overcome the resiliency of the long curvature from before backwards he now makes another cross cut, converting the two straight lines into the figure H. This enables him to put the projecting part of the septum into its place.

In this way, Dr. Price Brown thinks, tissue is saved, and a stronger septum will be the result than where the cartilage is freely dissected out.

Prophylactic use of Diphtheritic Antitoxin.—Dr. Shackleton (*Lancet*, 15th September, 1906) gives a short account of the prophylactic use of antidiphtheritic serum during an outbreak of diphtheria last autumn in a school containing from 300 to 400 boys. In all 317 pupils were inoculated with 1,000 units of antidiphtheritic serum supplied by the Lister Institute. There were in all fourteen cases of diphtheria inoculated within a few hours of the first symptoms of the disease, and they did well.

The cases occurred in two houses, and Dr. Shackleton sums up in the following words:—"No case occurred amongst boys belonging to "E" house after the

first inoculation for five weeks, except one, and that on the day following the injection. The case that did occur at the end of five weeks had the Klebs-Löffler bacillus present during the whole of that period. One other case occurred in "E" house, but that was in the case of the only boy who had not received any serum. No case occurred amongst the senior boys after the injection, although three cases had occurred and these were freely mixing with their companions until detected and removed. That no cases did occur and escape detection I am pretty certain, as I made a daily inspection of all the boys' throats for a considerable time."

The *Lancet* of 28th July calls attention to the treatment of diphtheritic paralysis, and points out that while the value of antitoxin in the treatment of diphtheria is now one of the best established facts of therapeutics, it has not hitherto been used after the attack for the treatment of the most important sequel—the paralysis.

Dr. M. J. Comby has been using the remedy for this condition, and first published his results in July, 1904. He again read a paper on the same subject at the meeting of the Société Médicale des Hôpitaux de Paris on 15th June. Nine cases of paralysis had been treated by M. Comby with success, and most of these were severe and took a general or ascending form. Dr. J. D. Rolleston, in the *Lancet* for 4th August, combats the views above-mentioned, quoting authorities to show that the treatment is not invariably successful. He further points out that it is not wholly innocuous, and says:—"I have elsewhere alluded to the disagreeable, sometimes alarming, results, such as rigors, vomiting, and collapse, with the eruption of a very profuse and generalised urticaria, that may occur within an hour of injection when antitoxin is administered in cases of relapse or a second attack of diphtheria, after it has already been given for the primary attack some weeks or months before. Even if the case has not been injected before, the ordinary sequelæ of serum are often distressing, especially in the case of adults. Though no fatal results have been recorded, the occurrence of such accidents invites us to adopt a safer and pleasanter method of treatment. M. Comby states that it is only exceptionally that serum phenomena of any importance have to be deplored, but it must be remembered that the cases recorded are relatively few and there is always the possibility of the occurrence of such sequelæ. On reference to Mourniac's thesis it will be found that in five out of the eighteen cases these serum phenomena were noted."

PATHOLOGY.

By JOHN H. TEACHER, M.D.

Experimental Researches upon Cancer in Mice. By Professor Ehrlich, of Frankfurt-am-Main (*Zeitschrift für ärztliche Fortbildung*, No. 7, 1906).—In the April number of this *Journal* a somewhat lengthy résumé was given of a paper by Dr. Apolant and Professor Ehrlich, published in the *Berliner Klin. Wochenschrift*, 8th January, 1906. In the latter paper the authors gave an account of three cases in which they had observed the development of sarcomatous change in tumours primarily cancerous. They dwelt very specially also upon the "colossal" energy of growth which by repeated and selected inoculations they had been able to obtain in their experimental investigations.

In the present paper the main facts established by Ehrlich and his co-workers are recapitulated, and a detailed account is given of further experimental work having an important bearing on the question of immunity, both natural and acquired. The established facts are of remarkable interest, and are here detailed at some length. It has been found impossible to do adequate justice to the valuable work of Ehrlich and his colleagues by a more

concise or summarised presentation of their results. The most important points established are as follow :—

Rats and mice have been found best suited for cancer transplantation. Material for inoculation purposes was at the outset very difficult to obtain. Thus Ehrlich during one whole year failed to obtain a single mouse suffering from cancer, and Bashford, of London, found only 12 out of 30,000 mice examined to be affected by spontaneous tumours. Latterly, however, Ehrlich overcame this difficulty, and within the last year or so he obtained no less than 230 mice with spontaneous tumours. All these mice were females; most of them had borne young; they were derived chiefly from certain special districts; the mamma was in every case the site affected; all the tumours were of an epithelial type—including adenomata, cystadenomata, simple alveolar cancer, papillary cancer, &c.; no endotheliomata were met with.

Ninety-four of Ehrlich's tumours were used for inoculation, with eleven successes (*cf.* Jensen's results—one successful result out of seven). In every case twenty to thirty mice were inoculated from each primary tumour, and, as a rule, only isolated examples (one or two, rarely more) were successful. Following the analogy of bacteriological methods, such as are used to obtain exaltation of virulence by passages through animals, a process of careful selection and repeated transplantation of those tumours showing specially rapid growth resulted in the obtaining of an enormous elevation of proliferative energy, this being manifested (1) in great increase in inoculability—almost up to 100 per cent; (2) in enormous rapidity of growth. Thus one tumour referred to (No. 7) grew within eight days to the size of an almond. The enormous volume which would have been attained by the total mass of all subinoculated material at the period when the seventieth generation was reached, supposing all possible inoculations had been carried out, was referred to in the previous paper. The main fact, however, *viz.*, the possession of material of such enormous virulence, is regarded by Ehrlich as of the very greatest value in investigations upon immunisation, just as the bacteriologist working in the direction of immunity seeks to obtain a culture of the organism concerned having the most constantly fatal character.

The "Paris" cancer strain (with 10 per cent of successes) and even the "Jensen" strain (successful, at best, in 30 per cent) he thinks are greatly lacking in this respect.

After referring to the development of sarcomatous change in the stroma of three cancerous tumours, as described in the previous paper, and drawing special attention to the tendency, in successive subinoculations, to elimination of the cancerous element (as actually happened in two of his cases), Ehrlich describes how his colleague, Dr. Haaland, succeeded in separating the sarcomatous from the cancerous, and in recovering the former quite pure from the mixture. Bacteriological analogy was here again followed. By exposure of the mixed tumour to a temperature of 45° C. the cancerous part was destroyed, and on inoculation a pure sarcoma was obtained.

An interesting series of experiments was recently made with a tumour obtained from the abdominal cavity of a female mouse. Primarily, and in its inoculation derivatives, this tumour had the histological characters of a chondroma. Subcutaneous inoculations led to successful secondary tumours in almost 100 per cent of cases, and by continued transplantation an exaltation of its proliferative energy was obtained, approaching even that of the most active cancer and sarcoma in Ehrlich's possession. The tumour was richly vascular, so also were even the youngest of the subcutaneous subinoculation tumours. In marked contrast with the success of subcutaneous transplantation, it was found that only very rarely did intraperitoneally-planted material form new tumours, and the few isolated nodules which were found, though definitely cartilaginous at their periphery, were in greater part (centrally) quite necrotic.

This tumour, occurring in a situation where cartilage does not normally exist, must be regarded as the remains of a fœtus in which only the cartilaginous part has developed, and this view Ehrlich believes to be quite in keeping with

the high percentage of successful inoculations in the same animal species, and with the great exaltation of virulence. No specific irritant need be assumed, the aberrant cartilage tissue itself having the necessary energy for active growth.

Ehrlich and his colleagues have, then, succeeded in obtaining a variety of tumour material in spite of great initial difficulty, and even yet of frequent failures. Thus, in the latest series of 21 tumours submitted to inoculation, and for which 282 mice (excluding those dying in course of the experiments) were employed, a positive, successful result was achieved in only 2. This result, in a laboratory so well organised as Ehrlich's, and where the research is carried out on a very large scale, strongly supports the view suggested by earlier experience, that spontaneous mouse cancer has no specially powerful infectivity, and seems to indicate the presence in the mouse organism, of whatever age and sex, of certain arrangements antagonistic to the further growth of tumour cells, unless these have acquired a specially high degree of virulence.

The problems emerging from such facts, then, concern (1) the origin of cell alteration leading to cancer; (2) the factors determining the development into tumour form of a primary focus of altered cells. These problems are obviously separate and distinct. As in tuberculosis, an initial focal bacillary infection, though a necessary predeterminant to tuberculous disease, is fortunately not followed of necessity, in anything but a fraction of cases, by progressive disease.

Into experimental transplantation the former question does not enter, for the proliferative agent is conveyed to the organism inoculated in already mature and active form. Failure in growth, then, must be due to some natural unfitness of the organism to sustain and encourage the further development of the tumour cells. Here enters the natural resistance of the organism, and this probably depends on various factors, such as descent and breed, nature of the tissue infected, conditions for nourishment, &c., as Jensen originally pointed out.

Regarding the nature of this element, it may be recalled that, as a rule, tumours are transmissible only to animals of the same, or a very closely allied species. Sticker has failed to transmit human tumours to dogs, guinea-pigs, &c., and Metchnikoff has been equally unsuccessful with anthropoid apes.

Ehrlich has made an interesting observation with one of his sarcomatous mouse tumours as regards the results of inoculation in the rat. Growth was found to proceed luxuriantly for about six days, when a tumour of some size was developed, consisting of a substantial sheath of actively-living cells enclosing the necrotic remains of the material inoculated; peripherally, the tumour merged into an inflammatory tissue. A similar result was got in the case of a cancerous tumour, and also when an artificial cancer-sarcoma mixture was employed, the result being a tumour quite similar to that grown in the mouse. The later progress, however, in every case showed a marked contrast between the two animal species, for in the rat the end of a week marked the limit of growth, and progressive retrogression, necrosis, and absorption or discharge forthwith took place.

Ehrlich argues from these results (1) that the rat organism contains no substances actively antagonistic to the cells derived from the mouse (else why the initial luxuriant growth?); (2) that the mouse cells find, in the rat, materials suited for their nourishment, up to a certain stage at least.

The sudden spontaneous retrogression at the end of the early active phase he explains by assuming that for the continued growth of the mouse tumour in the rat there is required a certain specific nutritive material, which he terms *x* material (*x*-Stoff). This is quite absent in the rat. Why, then, the initial growth? This he explains by reference to the analogy of the influenza bacillus. As shown by Pfeiffer, this may be cultivated on nutrient agar smeared with sputum from a case of influenza, but further cultures on ordinary agar are, except very rarely, impossible, unless the culture medium be supplemented by the addition of blood, or at least hæmoglobin. This special

substance, no doubt, is present in adequate, if minute, amount in the sputum, but is wanting in the ordinary nutrient agar, and without this specific "inziament" further growth is impossible. So, in the case of the tumours in question, antibodies may be regarded as absent, and the ordinary nutrient materials must be assumed to be present in sufficient abundance to support the initial luxuriant growth. The specific x material required for continued growth is defective. The rat does not itself possess it. A limited amount is introduced with the tumour tissue derived from the mouse, but at the end of a few days this is exhausted and further growth becomes impossible, unless the x material be renewed, *e.g.*, by inoculation again in an animal which possesses it. As a matter of fact, Ehrlich has, by zig-zag inoculation from mouse to rat, to mouse, to rat, been able to carry forward the growth of the tumours at will without any apparent loss of energy of growth.

The absence of this special, indispensable nutrient material in the rat is regarded by Ehrlich as an essential factor in determining the natural immunity of this species against mouse tumours; to distinguish it from the usual forms of active and passive immunity he terms this form "*atreptic*" (Gr. *τρεφω*)—depending on the want of some specific indispensable, trophic substance.

A different form of immunity is seen if rats once inoculated with mouse cancer are, after a suitable period, submitted again to inoculation with the same tumour; the result is complete failure—not even an initial attempt at growth taking place. This failure of the second inoculation must be regarded as dependent, not on "*atreptic*" immunity, but on the development of antibodies excited by the tumour tissue absorbed previously. Haaland's observation, that though metastases have been met with in 30 per cent of all mice examined, these have been nearly always of microscopic dimensions, might be explained, according to Ehrlich, as a manifestation of another form of "*atreptic*" immunity, the highly vascular primary tumour, by its gigantic growth, so depleting the blood of the necessary nutrient substances that the embolically misplaced cells are unable to find sufficient material for their further growth. This depletion theory he seems inclined to apply also to explain the failure of further growth in mice successfully inoculated, say ten days before. In contrast with the infrequency of macroscopic metastases in rapidly-growing mouse tumours, may be placed the fact that in the case of comparatively slow-growing tumours, such as chondromas, secondary tumours of some size occasionally occur. The non-development of macroscopic metastases, instead of militating against the malignant character of the former tumours, suggests, indeed, a special form of malignancy determined by their colossal energy of growth.

The initial cell changes leading to cancer being unknown, it is clear, at anyrate, that for tumour growth the changed cells must be so placed as to be able to get, in sufficient quantity, the materials necessary for their nutrition. Ehrlich assumes that these materials are, in the main, identical with those necessary for the body cells, and this he expresses in the sense of his "*side-chain theory*" (*Seitenketten-theorie*) thus—that the purely assimilatory receptors of the cancer cells are identical, at least in part, with those of other body cells. The distribution of the nutrient substances in the body is regulated (1) by the number of receptors in the individual cells; (2) by the avidity of these. He assumes the existence, normally, of a definite relation between the receptors of the different organs of the body, and between their relative avidities. Excessive growth of an originated tumour cell can take place only if its receptors have a relatively exalted avidity for the nutrient materials required by it. Only then and thus can primary cell anaplasia eventuate in definite tumour growth. Failure in growth of a mouse tumour transplanted in numerous other mice would imply that the receptor avidity of the tumour cells was no greater than that of the body cells of the organisms into which they were introduced. The inevitable conclusion would seem to be that the cause of tumour growth must be sought for in a diminution of the avidity of the receptor apparatus of the organism concerned. An injury to the organism as a whole need not in the least imply such weakening of the body cell

receptors, unless the inter-relations between the different organs suffer definite change.

From this standpoint the experiences of Michaelis, Borrel, and Bashford regarding the weak primary growth of the Jensen tumours (a relatively non-virulent strain) in English, French, and German mice, as compared with their relatively rapid growth in Danish mice, and the progressive obliteration of this difference by further transplantations in the former, admits of explanation.

The increase in virulence probably depends, in great measure, on exaltation of the receptor avidity of the tumour cells. The result has been that while the primary Jensen tumour could be induced to grow only with considerable difficulty, such tumours, in virtue of their exalted avidity, grew well at length in all varieties of mice, and even in rats. The main factor, then, in increase of virulence is, in Ehrlich's view, elevation of the avidity of the receptor apparatus produced by artificial selection, the conditions of normal "atrespy" being thereby abolished. The frequency of cancer in old age, attended as it is by lowering of the whole of the vital functions, may perhaps be explained by assuming the relative weakening of the receptor apparatus of the body cells. The bearing of this upon the explanation of the natural resistance of mice is obvious. Borrel has declared that in its solution lies the key to the whole cancer problem.

The view of Ehrlich may be regarded as quite in harmony with the views of the large body of pathologists who have continually urged the constitutional aspect of carcinomatous disease. The question regarding the transmissibility of constitutional change, also regarding the conditions of its artificial production, may yet come to be determined by experimental means.

Meantime there remains the question of immunisation. Jensen, who probably first attacked the subject seriously, produced an immune serum in rabbits, and also immunised mice with devitalised cancerous material. He, however, with commendable reserve, claims no more than that—"It seems possible to produce an active immunity in healthy mice; it is possible, also, so to immunise mice which by inoculation have already developed small tumours, that the tumour tissue is destroyed and absorbed. Further, it is possible, by inoculation of pulpified tumour material, to produce in rabbits and other animals a specific curative serum; it has not yet been possible, however, to discover methods guaranteeing a definite or sure result."

Though much work has been done on this subject, the limited published matter shows an unfortunate conflict in the reported results. While Clowes reports the presence of anticancerous substances in the serum of mice in which spontaneous absorption of tumours occurred, Bashford, according to Ehrlich, has so far obtained no immunisation, and Michaelis, using cancerous material devitalised by chloroform, has seen no evidence of immunity in mice inoculated.

The result of this conflict of evidence is that a deep scepticism as regards the therapeutic possibilities of this line of research has been engendered in the minds not only of the profession but also of the general public, so that even Ribbert, in his most recent work on tumours, entirely omits to mention the serum-therapy of cancer, and pins his faith on arsenic and similarly-acting drugs.

Believing that the earlier investigators have failed to get satisfactory results because they have employed material falling far short of maximal virulence, he has from the first made use of the most highly virulent material—such, indeed, as grew successfully in from 90 to 100 per cent of cases—and whose virulence was established in each case by a large number of control inoculations. Instead of chemically devitalised cancer tissue, also, he has adopted a method corresponding with that of inoculation with an attenuated virus.

The ordinary spontaneous mouse cancer, as has been said, has little virulence against the average mouse, probably not more than 1 per cent of inoculations succeeding. If specially vascular tumours be selected, this percentage is lowered still further (Ehrlich estimates it as not more than $\frac{1}{4}$ per cent). This latter material he has employed for the induction of immunity, and he maintains that his results up to the present, though fluctuating from 66 to 94 per

cent in different experiments, already show that in the preponderating majority of cases mice prepared by a preliminary inoculation with such material are rendered immune to even the most highly virulent tumour tissue at his command. The variations in his results are due, he believes, to variations in the quantity of cancerous tissue introduced, and other incidental differences in the series of experiments. A definite immunising effect, even from a single injection, he has never entirely failed to obtain, and he looks forward confidently to achieving complete success, when the procedure is carefully repeated and systematised.

The immunity obtained showed itself after a period of seven to fourteen days, and lasted for weeks or even months. A second inoculation, with the most virulent cancer, of mice in which the primary inoculation failed, in no case gave any reaction.

A further interesting fact established is that the immunity so obtained has more than a special or limited field of action—that, in fact, a preparatory inoculation with cancer immunises against all other strains of cancer and sarcoma, and a preparatory sarcoma inoculation against all other sarcomas and cancers. Not only so, but numerous experiments bearing on the behaviour of the chondroma already referred to, though these are not yet completed, have led Ehrlich to believe the sarcoma-carcinoma immunity may be found to have a still wider application—indeed, that it may prove to be possible to obtain not only a pluri-immunity but even a pan-immunity. He has found that in a number of animals in which a sarcoma-carcinoma immunity is well marked, the chondroma if it grows at all, does so very slowly. A complete chondroma immunity would require elevation of the sarcoma-carcinoma immunity to the maximum level, and this is not an easy matter. In two previously immunised mice, however, the first signs of chondroma growth were seen only after four months; this might argue a gradual loss of the original immunity with the lapse of time, allowing the chondroma “rests,” in the end, to develop into definite tumours. At once there is suggested the question as to the vital resistance of the cells introduced. The chondroma cells must have had the power of retaining their vitality—even in latent form—for four months, and, like the scattered germs or “rests” of Cohnheim’s theory regarding carcinosis, they passed from latent existence into active life only when the immunity possessed by the animal became sufficiently diminished. As in the case of the chondroma, so also in cancer, the vital resistance or tenacity of life of the cells plays an important part. This has been found to vary with the particular strain of cancer employed. Thus, in the primary tumours of grey mice, and their first subinoculations in the same species, there were developed most minute tumours only after a period of many weeks. The cells of these must have had a relatively high tenacity of life. *Per contra*, the cells of the specially selected, highly virulent cancer in Ehrlich’s possession have been found relatively fragile, so that if growth did not take place within eight days they died, and later tumour growth was impossible.

The acquired active immunity described by Ehrlich is doubtless due to the formation of specific antibodies,

The fact that these antibodies are not specifically directed against different tumour types, but equally against sarcoma and cancer, and even in some measure against chondroma, suggests to Ehrlich that—again following his “side-chain theory”—there may be, perhaps, common groups of receptors for different types of tumour cells, and that these groups determine the development of cancer or sarcoma, according as they belong to an epithelial or to a connective tissue cell. The explanation would be easy if it were assumed that the tumour receptors are identical with those which are able to take up the materials required for growth. The recent observation of Starling (in further elaboration of the Boru-Frankel theory regarding the embedding of the ovum) that, by subcutaneous injection of pulp of embryo rabbits, the rudimentary mamma of a female rabbit may be induced to increase in size equal to that of pregnancy, has an important bearing on the question as to the existence of such definite growth-directing materials. It may be supposed that by the correlated

assimilatory influence of the latter the cell nutrition is elevated, perhaps by the formation of more numerous and more avid nutritive receptors.

A further question suggested by the wide sphere of action of the active immunity obtained by Ehrlich is as to whether the natural "atreptic" immunity of animals has a similarly wide scope. Experimental determination of this is bound to be difficult, but such a wide application of atrepy is perhaps suggested by certain facts in pathological anatomy, such as those reported some years ago by Albrecht, of Frankfurt. Albrecht found that by careful *post-mortem* examination there might frequently be demonstrated, in one and the same organism, not merely a single tumour, but a variety of different tumours, besides other developmental abnormalities. Though Cohnheim's theory may be regarded as affording a simple explanation of such a state of things, the explanation does not explain why for twenty, thirty, or forty years these "rests" have lain dormant. It seems probable that the tolerably simultaneous bursting out of all the scattered "rests" is due to a common cause, viz., constitutional change in the organism, or, otherwise expressed, weakening of the avidity of the receptor apparatus of the body cells. With Albrecht, Ehrlich evidently regards this factor as the necessary complement to the "embryonic rest" in the etiology of tumours. The "embryonic rest," he believes, probably occurs with great frequency in the "colossal and complex organism of foetal and post-foetal development." But for the protective arrangements of the organism, therefore, cancer would probably be of enormously more frequent occurrence.

In concluding a most interesting and closely reasoned paper, Ehrlich acknowledges the generous support he has had, in carrying out his prolonged and costly experimental researches, from the Government, the Frankfurt magistracy, and a number of high-spirited contributors.

He admits that only a fraction of the problems that suggest themselves have so far been tackled, and that the ultimate cause of tumour growth is still unsettled.

He has not, personally, seen substantial reason for adopting the "parasitic" theory regarding tumour growth, and cancer growth in particular, but he preserves still an open mind on the subject. Like Jensen, he is prepared to regard the cancer cell as a colony-forming parasite.

His chief achievement, he believes, has been the attainment in his experimental work, of a satisfactory—to some extent, indeed, a brilliant—immunising action against even the most malignant conceivable strain of tumour material. He believes this is only the prelude to ultimate more far-reaching success.

"Some commanding bastions of the cancer fortress are already in our hands," he says. "Let us hope that the others will quickly follow; so that, with all the outworks in our possession, we may, with strong hope of success, attack the main problem of the fight for conquest over human cancer, and at last carry it by storm."

ARCH. YOUNG.

PUBLIC HEALTH AND INFECTIOUS DISEASE.

By JOHN BROWNLEE, M.A., M.D.GLASG., D.P.H.CAMB.

The Reduction in the Death-rate in Phthisis during the last Forty Years. By Dr. Newsholme (*Journal of Hygiene*, July, 1906).

—Dr. Newsholme has made a long enquiry in this paper into the various conditions which have been associated with the decline in phthisis death-rate in different places. He discusses the effect of urbanisation, improved housing, the cost of food, &c., and as a result comes to the following conclusions:—

1. In each country and city in which experience has been examined the general death-rate has decreased. In every case in which the phthisis-rate has also decreased, the decrease in the phthisis-rate has been greater, and in most

instances far greater, than that in the death-rate from all other causes. The largest increase of phthisis death-rate in any of the countries examined occurred simultaneously with nearly the largest decrease of the death-rate from all other causes. The variation in the phthisis death-rate must therefore have involved variations in some phenomenon or group of phenomena which had no material influence on the death-rate from the aggregate of causes other than phthisis.

2. For various reasons the separate investigation of the effect on the prevalence of phthisis which has been exerted by provision of increased light and air, suppression of dust, and drainage of subsoil, is not essential to the present discussion.

3. Increase of urbanisation, including increase of industrial occupation, has favoured the increase of phthisis, but its influence on urban phthisis has been counteracted wholly by the other factors of the phthisis-rate. In urban as in national statistics the decline in the phthisis death-rate, where it has occurred, has exceeded the decline in the death-rate from all other causes to an extent and with a constancy which shows the operation of some influence other than those to which the decline of the general death-rate is due.

4. Improved housing and decreased overcrowding have been associated in most cases, but not in all, with reduced prevalence of phthisis; but great overcrowding has not usually sufficed to prevent great decrease of phthisis, or improved housing in all cases to prevent its rise. Overcrowding is an important factor of the phthisis-rate, but its effect is usually not strong enough to counteract the influence of other factors.

5. The course of the costs of wheat, total food, and total living varies closely with the course of phthisis in Great Britain, slightly in Germany, and, in the case of wheat, in Paris, and inversely in Ireland. Compared with Great Britain, Germany and Ireland have lower wages and higher phthisis-rates, but Massachusetts has much higher wages and a much higher phthisis-rate. In both Great Britain and Massachusetts wages have risen and phthisis has fallen; but a considerable rise in wages has been accompanied in Ireland by some rise, and in Norway by a large rise, in phthisis. The consumption of food per head shows no correspondence with the extent of prevalence of phthisis; England, with twice the meat consumption of Belgium, has no appreciably lower phthisis-rate, and no more rapid decrease in prevalence; France, judging by Paris, with high food consumption, has by far the highest phthisis-rate, and with increasing food consumption shows no certain decrease in phthisis. It follows that the elements of nutrition have not exerted on the prevalence of phthisis an influence sufficient to counteract the other factors of its prevalence.

6. A close co-variation is found between the figures of total pauperism on the one hand and the decreasing phthisis-rates of England and of Scotland and the increasing phthisis-rate of Ireland. Total pauperism may be taken as an approximate measure of total phthisis. Owing to the heterogeneous elements of which pauperism is composed, its variations cannot constitute an explanation of the variations in phthisis, though that explanation may lie in some element or group of elements of the phenomena which it includes.

7. The decrease of phthisis, where it has occurred, cannot have been due to improved education as to the infectivity of the disease, or to the introduction of sanatoria, both of these having occurred after well-marked decrease had set in, and the sanatoria up to the present time having been insignificant in number relatively to the amount of the disease.

8. Institutional segregation of phthisis, measured by the ratio of deaths or cases in institutions to deaths or cases in the total community, shows moderate to close co-variation in the United Kingdom, London, Norway, Sweden, Copenhagen, Prussia and Berlin, Brussels, and New York. In Paris the character of the hospital treatment does not allow comparison to be made.

9. Measured by the ratio of indoor to total pauperism, which varies with administration, or of indoor pauperism to the total deaths from phthisis, the extents of segregation in England and Wales, Scotland, and Ireland, show close co-variation with phthisis.

10. Individual examination of the experience of many workhouses and workhouse infirmaries in various parts of the United Kingdom shows a constantly increasing use of these institutions for the treatment of phthisis, though a variable duration of treatment. Their total present use for the treatment of phthisis is very high, and in each of the four towns in which minute examination has been possible, increasing use has been accompanied by decreasing phthisis. The extent to which infection is withdrawn from the community, on the lowest figure of these instances, would, if applied over the country, determine approximately the amount of reduction in the phthisis death-rate which has in fact occurred.

11. In England and Wales a large and increasing amount of phthisis is segregated in lunatic asylums and other institutions beyond workhouses and workhouse infirmaries.

12. Segregation in general institutions is the only factor which has varied constantly with the phthisis death-rate in the countries that have been examined. It must therefore be regarded as having exerted a more powerful influence on the prevention of phthisis than any of the other factors, of which none has varied constantly with the phthisis death-rate.

A Study of the Kidney in Scarlatina. By Dr. E. S. Chapman (*Journal of Pathology and Bacteriology*, January, 1906).—Dr. Chapman has in this paper recorded the results of an investigation he has made into the pathological changes which occur in the kidney in scarlet fever. He divides the changes which are observed in the kidney into three classes, and thus synthesises his discussion of the several cases:—

Under Class I cases with a definite history of acute nephritis, commencing about the third week, were discussed. In these the pathological changes were always well marked and were most characteristic. They primarily affected the Malpighian corpuscles, and consisted of proliferative and degenerative changes of the glomerular capillaries, of the afferent arteries, and of the cells in Bowman's capsules. The changes affecting the tubules, on the other hand, were less characteristic, and were largely secondary to the alterations in the Malpighian corpuscles. These tubular changes were granular degeneration and, more rarely, disintegration of the cellular protoplasm. In connection with the primary changes, it was shown that all of them, if sufficiently advanced, would cause a diminution in the quantity of urine excreted, and this deduction was fully borne out by reference to the clinical histories of the cases. It was found that albuminuria was most probably ascribable to the changes in the Malpighian corpuscles, and that hæmaturia arose from direct hæmorrhage into the tubules. Tube-casts, both in process of formation and in the fully-formed state, were most frequently found in the junctional tubules; and it was pointed out that all the tube-casts reaching the urine were most probably formed in the smaller junctional tubules, that their granular portions resulted from the disintegration of the cells of the convoluted tubules and ascending loops of Henle, and that their epithelial elements were derived from the desquamated cells of the latter structures. A glomerular nephritis is typical of Class I.

Class II includes cases dying within a few days of the onset of the fever. In these the pathological changes were neither so marked nor so characteristic, and were chiefly of a degenerative character. They consisted of granular and hyaline degeneration of the tubular epithelium, of proliferation of the cells in the ascending loops of Henle, and of hyaline changes in the smaller blood-vessels. Of these changes special reference is drawn to the hyaline degeneration of the tubules, to the subsequent disintegration of the cells with liberation of the hyaline globules into the interiors of the tubules and into the interstitial tissue, and also to the proliferation of the cells in the ascending portions of Henle's loop. A degenerative nephritis is typical of Class II.

Under Class III were described cases dying after a period of six days or more from the commencement of the fever. In these the morbid changes consisted of an infiltration of the interstitial tissue, together with a high

degree of tubular degeneration. The infiltrating cells, known as plasma cells, were found to be mononuclear leucocytes in an altered form. They did not show any evidence of mitotic division, or any tendency towards phagocytosis. Many degenerating tubular epithelial cells, however, were seen in the areas of infiltration, and these cells occasionally exhibited phagocytic properties. The amount of tubular degeneration corresponded with the degree of cellular infiltration. It was found that the infiltration varied in its intensity according to the duration of the fever, that it was never present before the sixth day, and that it was evident from that day onwards in all cases except three. An acute interstitial nephritis is typical of Class III. It is to be noted that in none of these cases was any evidence of acute nephritis present.

It is thus seen that although most of the structures of the kidney may be affected during an attack of scarlet fever, the pathological changes present are definitely related to certain clinical phenomena, and occur at certain definite stages in the course of the disease. First, there is a glomerular nephritis occurring in cases which during life showed unequivocal signs of acute nephritis; secondly, there is a degenerative nephritis found in very severe cases dying within a few days of the onset of the illness; and, lastly, there is an acute interstitial nephritis associated with severe cases which survived for a longer period than six days from the commencement of the fever.

Books, Pamphlets, &c., Received.

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- Observations in the Federated Malay States on Beri-Beri**, by C. W. Daniels, M.B.Camb., M.R.C.S. Eng. (Studies from Institute for Medical Research, Federated Malay States, Vol. IV, Part I.) London: E. G. Berryman & Sons. 1906. (3s. 6d.)
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- Studies in Clinical Psychiatry**, by Lewis C. Bruce, M.D., F.R.C.P.E. London: Macmillan & Co., Limited. 1906. (10s. 6d. net.)
- The Climate of Lisbon**, by Dr. D. G. Dalgado. London: H. K. Lewis. 1906. (2s. 6d.)
- A Manual of Midwifery**, by Thomas Watts Eden, M.D., C.M. Edin., F.R.C.P. Lond. With 26 Plates and 233 Illustrations in the Text. London: J. & A. Churchill. 1906. (10s. 6d.)

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- The Use of Shower Baths in Schools in England and on the Continent, by Frederick Rose, Ph.D. London: J. & A. Churchill. 1906. (1s. net.)
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- The Eye and Nervous System, their Diagnostic Relations, by Various Authors, Edited by William Campbell Posey, A.B., M.D., and William G. Spiller, M.D. Illustrated. London: J. B. Lippincott Company. 1906. (25s. net.)
- Food and Digestion in Health and Disease during Infant, Child, and Adult Life (with an Introduction on the Nature of Matter and the Phenomena of Life, and an Account of the Source, Properties, and Influence of Water), by M. A. Dutch, M.D. (Kimpton's Public Health Series.) Illustrated. London: Henry Kimpton. 1906. (2s. 6d. net.)
- Selected Essays on Syphilis and Small-pox (Translations and Reprints from Various Sources), Edited by Alfred E. Russell, M.D.Lond., M.R.C.P. With Illustrations and Charts. London: The New Sydenham Society. 1906.
- Indications for Operation in Disease of the Internal Organs, by Prof. Hermann Schlesinger, M.D. Authorised English Translation by Keith W. Monsarrat, M.B., F.R.C.S.Ed. Bristol: John Wright & Co. 1906. (9s. 6d. net.)
- Surgical Diagnosis, A Manual for Students and Practitioners, by Albert A. Berg, M.D. Illustrated with 215 Engravings and 21 Plates. London: Henry Kimpton. 1906. (16s. net.)
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**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FIVE WEEKS ENDING 22ND SEPTEMBER, 1906.**

	WEEK ENDING				
	Aug. 25.	Sept. 1.	Sept. 8.	Sept. 15.	Sept. 22.
Mean temperature, . . .	57·8°	61·9°	59·0°	54·2°	53·9°
Mean range of temperature between day and night, . .	25·8°	43·9°	43·6°	29·2°	33·0°
Number of days on which rain fell,	7	1	5	4	1
Amount of rainfall, . . ins.	1·52	0·04	0·67	0·95	0·05
Deaths registered,	231	223	255	287	277
Death-rates,	14·4	13·9	15·9	17·9	17·3
Zymotic death-rates, . . .	0·5	0·6	0·7	0·2	0·7
Pulmonary death-rates, . .	1·7	1·3	1·5	1·5	1·6
DEATHS—					
Under 1 year,	74	76	63	84	75
60 years and upwards, . .	49	37	44	41	52
DEATHS FROM—					
Small-pox, . . . . .	...	1*	1†	...	...
Measles,	2	2	2	2	3
Scarlet fever, . . . . .	...	1	3	4	1
Diphtheria,	3	2	...	...	3
Whooping-cough,	9	8	5	6	7
{ Fever,	1	4	4	4	6
{ Cerebro-spinal fever, . . .	4	5	3	1	1
Diarrhœa,	30	28	31	67	51
Croup and laryngitis, . . .	...	...	1	...	...
Bronchitis, pneumonia, and pleurisy,	24	27	27	32	37
CASES REPORTED—					
Small-pox, . . . . .	...	...	...	...	...
Diphtheria and membranous croup,	26	35	23	34	19
Erysipelas,	22	15	21	21	21
Scarlet fever,	27	40	38	53	26
Typhus fever, . . . . .	...	...	...	...	...
Enteric fever,	20	10	13	15	8
Continued fever, . . . . .	...	...	...	...	...
Puerperal fever,	2	...	3	...	...
Measles,†	37	27	30	16	17

* Chicken-pox.

† Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 2nd October, 1906.

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ORIGINAL ARTICLES.

A PLEA FOR THE STUDY OF THE DEAF CHILD AND
FOR THE TEACHING OF SPEECH TO THE SEMI-
DEAF AND SEMI-MUTE.¹

By JAMES KERR LOVE, M.D.,
Aurist, Glasgow Institution for the Deaf and Dumb.

A CAREFUL outlook on the field of deaf-mute education, as that field is displayed in the chief countries of Europe, in Britain, and in North America, shows some striking phenomena.

In Germany all the deaf are taught to speak—that is, they are taught by the oral method, and no finger-spelling is allowed. In France the oral method is chiefly in use, although thirty or forty years ago nearly every French child was taught by the finger method. In Britain the fate of the deaf child depends much on the part of the country in which he happens to be born—if within the sphere of influence of an oralist, he is taught to speak; if not, he is taught to use his fingers. In America the same state of affairs holds as in Britain. In one district of New York he will be taught to speak; in another, he is likely to learn little but

¹ A report on visits to European and American institutions for the education of the deaf, during the years 1904-1906, and presented to the directors of the Glasgow Institution for the Education of the Deaf and Dumb.

finger-spelling. In Washington he will not learn to speak, in Philadelphia he will.

A glance at the history of the education of the deaf displays the same startling phenomena. I have noticed the change of practice in France; in Italy the same change has taken place. Fifty years ago there was hardly any oral training; now there is hardly anything else. In 1815 Mr. Gallaudet came from America to Edinburgh to see the oral work of Dr. Watson and Mr. Kinniburgh, and to take back the oral method to the New World; but access to the Edinburgh school was denied him, and Mr. Gallaudet went to France, and took home the finger method. This accident committed the United States to the finger method for over half a century, and at the present time, nearly a century after Gallaudet's journey to Scotland, there is no unanimity in America as to the education of the deaf.

Contact with living teachers, and with the teaching methods of to-day, shows no approach to agreement. Mr. Van Praagh told me that all the deaf, except the idiot and the blind, should be taught by the oral method. Dr. Gallaudet recently took me over the Kendal School and Gallaudet College at Washington, and I saw hardly any evidence that oral teaching existed in that city.

Mr. Henderson, the Glasgow missionary to the adult deaf, told me of several local deaf-mutes on whose oral education by private tuition large sums had been spent, but who in the end took refuge in finger-spelling. On the other hand, I have met deaf-mutes who never had the advantage of private tuition, but who spoke distinctly, and lip-read with scarcely an error.

Now, it is not the teacher of the deaf who is at fault. Many teachers, it is true, are so full of their method that they cannot see the deaf child for their method. Teachers have divided themselves into opposing camps of oralists and manualists, and until this opposition cease, the deaf child must suffer. But I have probably visited more schools for the deaf than any living medical man, and I have met no more devoted, patient, and laborious set of women and men than the teachers of the deaf.

Nor is it the systems of education, as such, that are at fault. I doubt very much whether either the methods by hand-spelling or by speech and lip-reading will ever be much improved, and I feel sure that we have already far too many combinations of these. Further, I doubt very much whether there is any less satisfactory and more disappointing chapter in the history of education than that in which teachers advocate the claims of the special methods of education which they recommend. Neither are there any differences in the deaf themselves to explain the differences in the practice of their educators. The causes of deafness, and the degrees of it, are the same in Germany as in America, the same in Britain as in France. Geographical distribution, except within the very narrowest limits, makes no difference. Nor does time alter the

incidence of the deafness which produces dumbness. Except, again, within the narrowest limits, the causes of deaf-mutism are the same from one decade to another.

How, then, comes this apparently accidental management of the education of the deaf? Why should what is universally practised in Berlin be almost as universally ignored in Washington, and why should what is right in 1856 in Paris be wrong in 1906? Why, in a single question, have teachers of the deaf divided themselves into two opposing camps for two or three hundred years, and why is there now no real progress towards unanimity? *Because the deaf have been, and still are, regarded as a homogeneous class, which they are not.* They are brought together into large buildings and taught by a single method, when no one method can be successfully applied to them.

This statement applies to the oral and hand alphabet methods alike, and it applies with less force, but over a larger area, to what is known as the combined method. In an oral school, at least the semi-deaf and the brighter amongst the totally deaf will get justice. In a hand alphabet school, the totally deaf for the most part get justice, though the semi-deaf and the brighter amongst the totally deaf suffer; but in a combined school, the best is done for neither class. I think, therefore, the combined method does not supply the solution of the problems connected with the education of the deaf.

I am convinced that the motto of the future must be, *Forget the system, study the deaf child.* The deaf child, gentlemen, always the deaf child. Make an inventory of his faculties. Measure his hearing, and use what remains to the utmost. If he has any speech, save it for him as the most precious of his possessions. Test his eyesight, and correct its faults. If you do not expect a deaf boy to hear you, do not expect a blind boy to read your lips. Get at his family history. Do not look for a brilliant pupil of any kind from a badly tainted fraternity. If he was born hearing, get at the cause of his subsequent deafness. Do not expect a boy who has suffered from meningitis to become a brilliant language pupil. Examine his nose and throat. Do not expect a deaf boy with abundant adenoid growths to speak well; a hearing boy with the same obstruction speaks badly. If the boy is in bad general health, improve that. You cannot expect a hungry, rickety child from the East-End of Glasgow to become all at once a brilliant pupil by any method. If you will give me answers to half a dozen questions such as the above, I will tell you in most cases by what method the child should be educated. *But the method must wait on the child, not the child on the method. The deaf child first, always the deaf child first.*

After what I have said about the deaf child, you will not expect me to be the advocate of any one system of educating the deaf. The student of the deaf child, as I have outlined him, will never magnify

his system. After wandering about the world amongst oralists and finger-spellers, watching the work of both, and listening to the criticisms of each on the other, he is apt to exclaim, "A plague on both your houses," and his only refuge is the deaf child. The two systems which these gentlemen represent are excellent as systems, so excellent and so complete that I regard them as finished products. I doubt if any more accurate, more efficient, and more rapid means of communication will ever be used by the deaf who cannot be taught to speak than our present hand alphabets. And, again, I doubt if the oral method of teaching the deaf, as at present used in certain schools in Germany and America, will ever be much improved upon. Hence, I assert *that further progress in the education of the deaf-mute depends not on the study of methods of education, but on a study of the deaf themselves, a study which will give a scientific classification, and which will enable existing methods to be applied with greater efficiency.* This statement leads me to divide this enquiry into two parts—

1. How are the deaf taught at present in the most progressive countries in the world?
2. What does a study of the deaf child point to as the best classification?

I proceed now to answer the first of these questions. I will take the schools of Germany and America as representing the advance guard of deaf-mute education or rather educational systems. The German plan of teaching the deaf by the universal application of the oral method is like the fitting of all kinds of sight defects with one type of eye-glass. In a school like that at Frankfurt where the pupils are picked, where no weak ones are admitted, and where money is lavishly spent in the getting of good results, it is a success. In a school like that at Dresden, one of the largest in Germany, a fifth of the whole are regarded as weak, and are allowed natural signs to help the oral method. In nearly every institution in Germany, teachers may be met who find a section of their pupils so dull that they either use signs to help their pupils, or admit that they would like to do so. The adult deaf of Germany, like the adult deaf elsewhere, sign a good deal amongst themselves. I am not speaking of finger-spelling, of which there is none in Germany, but of mimic gestures, without which the teaching of many of the deaf is unspeakably laborious and sometimes impossible. Germany may never leave the oral system, but I feel sure that with regard to the duller of her deaf children, some departure from pure oralism will be taken. In Berlin many of the semi-deaf are sent to the board schools, where special arrangements are made for them, so that the number of this class in the institutions for the deaf in that city is less than half what it is elsewhere. Were this done all over Germany and were special classes for the semi-deaf created in all hearing schools, I think the oral system would have but poor results to show in Germany, for there, as elsewhere, the oral system has most of its successes amongst those who have a good

deal of remaining hearing and speech. Oralism and the German system have been so long and so closely associated that for a long time in almost all minds, and still in many minds, the two rank synonymously. And Germany stands so thoroughly committed to oralism that although most of the arguments for a more scientific classification are based on the work of her clinical observers, she will, I think, be the last of the great countries to educate her deaf rationally. But in time, even in Germany, the mist of systems will fall from her eyes and she will behold "the deaf child."

In America things are different. There is no American system of educating the deaf. By an accident the finger-spelling or manual alphabet system got the start. But perhaps the accident matters less than it seems. Had the oral system been introduced in 1815, and had it been as rigidly applied as in Germany, I believe the receptive and thorough American would have cast it off before now, and the visitor would have found in the United States very much what I found in the early summer of this year, viz., opposing systems so highly walled-in that it is only now and then one can get a glimpse of the deaf child. The deaf child has never been studied in America as I have outlined his study; but he is being experimented with on a colossal scale. More money is being spent on him than in any country in the world, and although not the shortest, nor the cheapest, nor in any sense the best way, this is one way of getting at the truth—and the Americans will get at the truth whatever it costs. Already classification of a kind begins to show itself in the larger institutions. At Mount Airy, Philadelphia, an oral school with over five hundred pupils, 6 per cent are admittedly oral failures and are treated by a separate method. At Washington Heights, New York, a combined school, also with over five hundred pupils, separate classes exist for the semi-deaf, who are taught exclusively by the oral method. Both institutions are under the care of very able men.

Comparing the oral with the combined schools of the United States, I found that the best results and the most intelligent pupils were the product of oral teaching. I think the orally taught deaf of the United States are the best taught deaf in the world. I am referring to the finished product, when the child leaves the institution, and I am referring to general intelligence and fitness for the work of life. At Northampton, one of the best of the American oral schools, it is held that at any stage of the deaf child's education the orally taught is in advance, intellectually, of the manually taught or those taught by the combined system. I think the attention required in the early years for acquiring articulation may delay the child's general progress for a time, but after the fifth school year the oralist is abreast of the manually taught, and during the remaining years he slowly forges ahead, until, at the end of his school career, the American orally taught child is the best taught deaf child in the world. The school career of the American deaf child is longer than that of the German. The latter is eight years, the former ten or

twelve years. These extra school years give the American deaf these advantages:—

1. He leaves school when his education has brought him more nearly in line with his hearing fellows.

2. During the later years he has carried on, in addition to his intellectual development, a thorough training in some trade, for the larger American schools are fully equipped with trade departments.

3. As Mr. Nelson, of Manchester, has pointed out, these additional years spent in school, say till the age of 18 or 20, are important in another respect. In Britain when the lad leaves the school, say at 15 or 16, "he meets with bad companions, unsympathetic benchmates, and his spare time is filled up in a vacant and unprofitable way. Under the American plan this difficult time is bridged over, and when a young man leaves the gates of the school, he goes out self-reliant and well fitted in every way to take his part as a citizen of the world."

In America at present there is a tendency not only to keep the youth at school late into his life, but to take the child in hand very early. This may be seen in Boston, under Miss Fuller, but on a larger scale at Bala, near Philadelphia, under Miss Garrett. This lady, who carries on her late sister's work with great enthusiasm and ability, does not believe in the institutional plan of educating the deaf. Her own school is a residential one, it is true, but she regards it as a substitute for bad homes. From these homes she takes the children at 4, 3, or even 2 years of age, and keeps them continually under her care, even during the summer vacation, till they are able to enter the ordinary hearing schools, say six or eight years later. The education is purely oral. About Miss Garrett's success whilst the children are with her I have no doubt, but I doubt much the wisdom of handing such seriously handicapped children over to the ordinary schools for the hearing, and there is a good deal of difference of opinion amongst American teachers as to the results of this step.

At the other end of the deaf child's educational life, America has been conducting for many years another great experiment, in the shape of Gallaudet College, Washington, where the deaf youth or young woman may take a university course, and graduate like hearing men and women. Now Gallaudet College has shown that the brightest among the deaf are capable of high intellectual and scientific attainment, but I do not think other colleges of this sort should be founded throughout the world. Descriptive lectures are not of great value in the universities of the country, and there is no reason why the intellectual deaf should not attend the ordinary universities. Into the practical courses of these institutions they could easily enter, whilst tutorial classes for their help could easily be attached to the ordinary lecture courses. Some of the deaf in the United States actually attend the ordinary universities.

But is there no country on either side of the Atlantic where

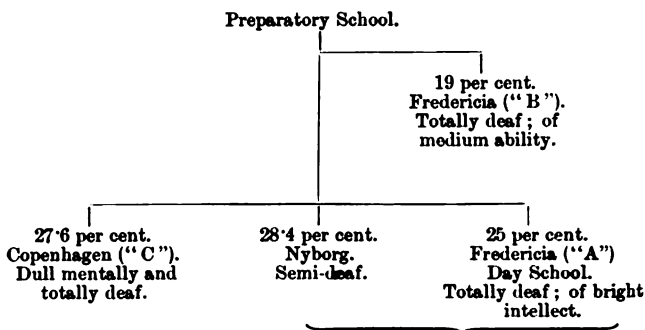
systems are subordinated to the deaf child himself, and where teaching based on a scientific classification is carried on? Fortunately there are two small states in Europe which are in advance of all the world in this matter, and from which I believe much may be learned. These are Denmark and its neighbour, Schleswig-Holstein, once a part of itself. In Denmark the deaf are classified on the basis of remaining hearing, in Schleswig on the basis of intelligence. These classifications differ less than they seem, for I will have to show you that, with certain exceptions, which find their counterparts amongst hearing children, they are nearly identical; in other words, the most intelligent amongst the deaf are those with remaining hearing and speech. The Danish and Schleswig systems find themselves at one in this, that whilst they educate some of the deaf on the oral system, they recognise that a large number should not be so educated, and frankly consign these to separate schools, where pure oralism is not attempted. The teaching of the deaf in Schleswig and Denmark is therefore worth a little detailed study.

Denmark is a small country, with a population of a little over two millions, and a deaf-mute ratio of about 1 to 1,600 of her population. At present the deaf population of school age numbers about 334, and the arrangement for the education of these children is as follows:—All deaf children are sent, to begin with, to Fredericia, in the south of Jutland or West Denmark, where they enter a preparatory school. At the end of a year those who have any considerable remaining hearing, that is, those who hear vowels, are removed to Nyborg, a town on the island of Funen or Middle Denmark, where they attend a day school and are educated by the oral method. No distinction is made between the dull and bright amongst these semi-deaf children. Most of them are bright children, but there are some dull children amongst the semi-deaf, as there are amongst hearing children. Only totally deaf children are now left at Fredericia, and at the end of the second year these are again reviewed, and the dull amongst them are taken from this preparatory school and sent to Copenhagen, the capital of Denmark, situated in the east of the country. In Copenhagen these totally deaf children of dull intellect are taught by finger-spelling, and no time is spent on oral training. This is the essence of the Danish system, and it seems to me to recognise the first great fact which emerges from a study of the deaf child. *It is not worth while trying to educate by the oral method a mentally dull child who is totally deaf.*

The mentally dull and totally deaf children of Denmark are called the "C" children. At Fredericia two classes are left, designated "A" and "B" respectively, but both totally deaf. The distinction between them is on the basis of mentality, the "A" class being the brighter. Some of those are brighter than some of the semi-deaf at Nyborg. They are educated at a day school at a distance from the preparatory school, by the oral method, and care is taken that this oral training is encouraged at the homes at which they board. The

"B" children—the totally deaf of medium mentality—remain in the preparatory school, where they also are taught orally. A diagram, with accompanying percentages, will make these arrangements clear.

DISTRIBUTION OF SCHOOLS FOR THE DEAF IN DENMARK.



The actual figures for the spring of 1905, and the corresponding percentages, were as follows :—

Preparatory school at Fredericia,	.	.	70 pupils (unclassified).
"A"	"	"	66 " or 25 per cent.
"B"	"	"	50 " 19 "
"C"	"	Copenhagen,	73 " 27.6 "
Semi-deaf	"	Nyborg,	75 " 28.4 "
			100 "

The Danish system of educating the deaf, or rather of classifying the deaf for educational purposes, is, in my opinion, too complicated, and may be faulty in some of its details. For instance, I see no reason why the "A" children of Fredericia should not go along with the semi-deaf of Nyborg into one oral day school or residential institution. Both are taught by the oral system, both attend a day school, and both, I shall try to show you, master the oral system so thoroughly that they keep up their speech in adult life. Nor do I see why the "B" children of Fredericia should not go along with the "C" children of Copenhagen. Both occupy residential institutions, and I fear many of these "B" children never make oral successes. This would reduce the Danish schools from five to two, for the preparatory school might be a division of the oral school. But I heartily agree with Mr. Addison when he says that "in this small but progressive country of Denmark, we found the most thorough organisation for dealing with the problems of deaf-mute education on a scientific basis."

Let us see, now, how the Schleswiger deals with the difficult

problem. Schleswig is smaller than Denmark, has a population of about a million and a quarter, and last year there were 132 children under instruction in the schools, of which there are two, both in the town of Schleswig. The Schleswigers do not separate the totally deaf from the semi-deaf like the Danes, but the proportion of the latter is almost the same as in Denmark, viz., 30 per cent. The Schleswigers classify their deaf on the basis of mental brightness, or, as the Americans say, on the basis of mentality. All the children go to a preparatory school. After two years the dullest, now called the "C" class, are set aside. It is not necessary to remove them from the preparatory school, for all teaching is by the oral method as in Germany, but these "C" children are allowed the help of free signing in their education. The brighter children, now classed as "A" and "B," are removed to a well-appointed day school, about a mile and a half from the preparatory institution, and taught by the oral method. The basis of classification is mentality, not remaining hearing, but the day school contains a much larger proportion of the semi-deaf than the residential institution. The Schleswig system of classification is faulty, in that it takes too little notice of the semi-deaf, and it insists on the oral training of all the deaf, however dull in intellect.

Even were the accommodation for the deaf children of Glasgow ample, I should press on you some modification of the present arrangements. I am the more encouraged to do so because the accommodation is not sufficient, and because I see an opportunity which rarely arises in the history of any institution. I believe it is in your power to establish one of the most efficient centres for the education of the deaf in the world. This would be done by a combination of the Danish classification with American thoroughness.

All the deaf should pass through a preparatory school, where for one or at most two years they should have a chance of education by the oral method. This school should be able to accommodate from thirty to forty pupils, and may either be near the present institution or form part of a new oral school. In this preparatory school a scientific inventory of all the faculties of every deaf child would be made. Such a scientific study, together with the experience of the teacher of these children, would enable the first great step in the classification to be taken, viz., *the separation of those who are likely to be worth training orally from those who should not be so trained*. The former would consist of almost the whole of the semi-deaf and the brightest of the totally deaf, or, referring to the Danish classification, the Nyborg children *plus* the "A" children of Fredericia. A few of these semi-deaf children might be dull children with bad memories, but if their speech be good they should still be kept in the oral school. These semi-deaf and "A" children should now be removed to a new oral school built at a distance from the present institution. The rest of the children would remain at the present institution, where they should be taught by a finger-spelling

or a combined method. They would be known as the "B" children of the Glasgow school.

The semi-deaf and the "A" children would form about 40 per cent of the whole with the present eight years' school course. So much for the European or Danish Schleswig part of the new Glasgow system. Now for the American part. The school course should be extended from eight to ten or twelve years, and the last part of the course, say the last four years, should be half intellectual and half trades in its arrangement. Many of the apparently intellectually dull would have their intelligence awakened by the application of their hands, and those who continued this extended course would leave the institution fit for their several places in life, and would, like many of the American deaf, make a place for themselves in society such as the British deaf-mute seldom does. Were the school course extended to ten or twelve years, I think the oral school would contain a majority of the pupils.

The study of the deaf child acquires an additional interest and importance at the present time, because in the English Education Bill now before Parliament a clause has been introduced which involves the medical examination of all school children entering the elementary schools, and there is little doubt that such examination will be carried out in Scottish schools at an early date. It should be gratifying to you to know that your institution has led the way in this matter in Britain, for such an examination of your children has been conducted already for fifteen years. I advise you, however, to appoint an eye surgeon to examine the eyes of the children on admission, as some children progress slowly because of remediable defects of sight. I found this carried out at some of the American institutions.

Of course, the cost of education of the deaf would be greater than at present. America spends nearly twice as much on her deaf as we in Glasgow do, and Germany at least a third more. Denmark, like Germany, spends nearly a third more than we do on the education of her deaf. Canada spends £43 per head on her deaf children, much more than we in Glasgow¹ do. But both the community and the State would gain in the long run, for the deaf would be more self-supporting, or rather, more of them would be self-supporting, and a larger number of them would be restored to the society of the hearing.

You must have noticed that I have had much to say of the semi-deaf and semi-mute, those with some hearing and speech; that, indeed, I have been pleading for the salvage of these lost faculties. Wherever you have bright pupils in a large class, most of the bright ones are the semi-deaf and semi-mute. In the highest classes of all institutions, amongst the children who have been found fit for the most intellectual work, the proportion of the semi-deaf and semi-mute is larger than in the lower classes. The importance of remaining

¹ The Glasgow rate at present is about £35 per head per annum.

speech and hearing then can hardly be exaggerated, and these can never be too assiduously cultivated.

The Danish system, I said, recognised the fact that it is not worth while trying to educate a mentally dull child, who is totally deaf, by the oral method. The Danes have 27·6 per cent of these. We and they alike have about the same number of semi-deaf and semi-mute, and I would put as a statement of the second great fact which emerges from this study, this—*The semi-deaf and semi-mute, which form about a fourth part of the deaf children of all countries, should be taught by the oral method alone, and only in a few cases will this fail to give satisfactory results.* To continue longer to educate these semi-deaf children by a finger-spelling or a combined method would be a grave mistake. The new school which I would found would contain, whoever else, these semi-deaf and semi-mute children, and on its corner-stone there might well be engraved, "Speech for the semi-deaf."

Speech is like a beautiful building. Silently, with never a whisper from the growing child, its foundations are laid. But the sound of his mother-voice is ringing in his ears and the word he has heard a hundred times he soon tries to produce. The delighted mother erects a scaffolding of signs and gestures to help the efforts of the child. Slowly but gracefully rises a building, pillar and capital, tracery and moulding being added, till a spire appears at the top which points to Heaven. So is it in this building up of human speech. The rough, uncouth syllables are hewn into more beautiful form by the tender mother, every encouragement is given to the efforts of the child till words become sentences. Broken and but half understood at first, words have to be supplemented by signs and assisted by gestures, and so valuable are such signs and gestures, that throughout adult life most speech which is worth listening to or which the speaker wishes to be more than usually effective, is freely adorned with them. But in the hearing child they are no permanent part of the structure. Like the scaffolding they are soon done away with, and the speech of the child grows, word on syllable, sentence on word, premiss on sentence, and conclusion on premiss, till a structure arises which is one of the few possessions man does not share with the lower creation, and which is the ladder by which his thought is led to God.

In the deaf child the process of speech building is more laborious and the result is never so beautiful. But it is nevertheless the unquestionable right of the deaf child to have the effort made for him, and at least in the case of the semi-deaf and semi-mute the effort will usually succeed. Every scrap of hearing should be used, every vestige of speech saved. The scaffolding of signs and gestures may have to be reduced to a system and kept up for a longer period, but the building itself must be of words and sentences which must be spoken as well as may be. As soon as expedient the scaffolding of signs and gestures must be removed, if the speech of the deaf or even of the semi-deaf is to be worth anything, and although, as in the

repairing of the building to which I have likened it, the scaffolding may have to be re-erected from time to time, it must be no part of the permanent structure and must only be used in times of stress or disaster.

Nearly five hundred years ago Donatello, the greatest of the early Tuscan sculptors, lived at Florence. All Florence had flocked to his studio to see his *St. George*, the masterpiece of this great artist. Princes, dukes, lovely ladies, vied with each other in praising the work. One day a student stood with fixed eyes and folded hands before the *St. George*. He walked from one position to another, measured it with his keen glances from head to foot, regarded it before, behind, and studied its profiles from various points. The venerable Donatello saw him, and awaited his long and absorbed examination with the flattered pride of an artist and the affectionate indulgence of a father. At length Michael Angelo, for that was the student's name, stopped once more before it, drew a long breath, and broke the profound silence: "It wants only one thing," muttered the gifted boy. Years passed on; Donatello knew the mighty genius of Michael Angelo. The young artist had gone to Rome, and the old man lay on his dying bed in Florence. "But one thing;" amidst the murmur of applause which fell on his ear from all sides there came the whisper, "It wants only one thing." "What can it be?" Michael Angelo was sent for.

"I am going, Michael; my chisel is idle, my vision is dim; but I feel thy hand, my noble boy, and I hear thy kind breast sob. I glory in thy renown. I predicted it, and I bless my Creator that I have lived to see it; but before I sink into the tomb, I charge thee, on thy friendship, on thy religion, answer my question truly."

"As I am a man, I will."

"Then, tell me, without equivocation, what it is my *St. George* wants."

"The gift of speech," was the reply.

A gleam of sunshine fell across the old man's face. The smile lingered on his lips long after he lay cold as the marble upon which he had so often stamped his genius.¹

Gentlemen, to this statue, which remains the admiration of posterity, no human power could give the gift of speech; but it is given to us to confer on many a deaf child this great gift, and until we have done so to as many of the deaf as are capable of receiving it, we have fallen short in our duty.

The following were the German schools visited by Mr. Addison and myself during the early summer of 1904:—

Frankfurt-on-Main (Director Vatter).—A large, well-appointed

¹ This Donatello incident is almost a *verbatim* extract from the *Scottish Annual*.

school of forty pupils. No weak pupils are admitted. The method is "pure oral" in almost the literal sense. The school course is eight years. There are no day scholars, all being resident. About 27 per cent are semi-deaf, but no acoustic training is given. Certainly no aids to hearing should be used here, for Vatter has the voice of a lion. The speech and lip-reading are both very good. The cost per head is £50 to £55 per annum.

Munich Institution (Director Köller).—One hundred pupils. There are twelve day scholars here, the rest are residential. Twenty per cent are semi-deaf, and are taught by a special method, by which the pupil watches the lips of the teacher in a mirror whilst the words are spoken loudly in his ear. This produces excellent speech and lip-reading in these semi-deaf children. The Director would, if possible, have a separate school for these semi-deaf children, as they are influenced for the worse by association with the totally deaf. He thinks the mirror method improves the intelligence of dull pupils. Except amongst the semi-deaf, the speech in this school is not specially good, and a good deal of gesticulation goes on. The Director thinks the speech of the children improves after they leave school, unless where they congregate in unions in large towns. In the country, where they are compelled to mix with the hearing, speech and language improve in after life. Professor Bezold carries out very careful testing of the hearing power in this school.

Vienna Royal Institution (Director Fink).—Eighty-three pupils, eighteen of whom are day scholars. Twenty-five to 30 per cent are semi-deaf or have vowel hearing. In the school these semi-deaf and semi-mute children are easily picked out by their good speech and intonation. Both the children and the teachers sign a good deal in the schoolroom. The school course, as elsewhere in Germany and Austria, is eight years, and the cost per head is £40 per annum and over.

Vienna Jews' School (Director Brunner).—One hundred pupils, twenty-five of whom are semi-deaf and semi-mute. Here, again, the speech of these latter is much better than that of the rest of the school. Remaining hearing is exercised by Urbantschitsch's "Harmonica," with the result that hearing, or at least the appreciation of sounds, improves.

Wiener Neustadt.—Seventy-eight pupils. Here, again, Urbantschitsch's "Harmonica" is used to improve the hearing of the semi-deaf. A nurse treats the actively diseased ears. The building is situated in the country, and is new and very well appointed. The cost per head is £37 per annum.

Dresden Institution (Director Stötzner).—Two hundred and thirty pupils, 33 per cent of whom hear vowels and words. Within one building the children are classified in "A," "B," and "C" classes. The "C" class is composed of weak-minded children, and comprises about a fifth of the whole school. The proportion of the semi-deaf

and semi-mute is much higher in the "A" classes, and here the speech is much better. All the semi-deaf go into the "A" classes. The Director thinks all but the "C" children can be fully educated orally. The cost per head is £42, 10s. per annum. The Director thinks his school too large, and would favour smaller buildings.

Berlin Royal Institution (Director Walther).—Eighty-six pupils, with only 10 per cent of semi-deaf, because in Berlin most of these attend special classes in the hearing schools. On the whole, the speech and lip-reading here are poor, and the intonation of the voice is poor. The highest class, however, has good speech, and the children in it are very intelligent, though only two or three members in it have well intoned voices. M. Ferrari, of Sienna, a well known Italian teacher, was visiting this school when we were in Berlin. Ferrari has recently seen the schools of the United States. He holds that the pure oral system is the best, and that language develops as far under it as under the finger or any combined method.

Hamburg Institution (Director Sodor).—One hundred pupils, about half of whom are day scholars.

The Danish system or plan of educating the deaf has been discussed so fully that any details with regard to individual schools is here unnecessary. The visit to these schools and to those of Schleswig were paid in May, 1905. A word here as to the history of deaf-mute education in Denmark may be valuable, as it shows how the Danish classification came about. In 1787 Pffingsten, a peruke maker and musician, commenced a small private school for the deaf in Lubeck. Later this was transferred to Schleswig. About a hundred years ago Dr. Castberg was deputed by the Danish Government to visit the chief schools in Europe and report. He spent a long time at the Paris Institution, and on his return the Royal Institution at Copenhagen was founded, and the method adopted was finger-spelling and writing. This was in 1807.

It was not till 1850 that an oral school was founded in Copenhagen. It was founded for the uncongenitally deaf (the semi-mute and semi-deaf). In 1881 these two Copenhagen schools were found insufficient for the accommodation of the deaf children of Denmark. A new Royal Institution was therefore built at Fredericia, and Mr. Jorgensen, formerly a teacher at Copenhagen, was appointed the superintendent. This school was taught by the oral method. In 1891 the oral school for the semi-deaf at Copenhagen was removed by the State to Nyborg, and thus the present distribution of schools in Denmark was completed. The present head of the Nyborg school is Mr. Forchhammer, perhaps the most scientifically-minded teacher of the deaf I have met in any country. Quite lately I wrote Mr. Forchhammer regarding certain points in the Danish system or plan of education, and as I have said so much in favour of Danish classification I think it worth while reproducing his reply:—

DEN KGL. DOVSTUMMESKOLE,
NYBORG, 7th August, 1906.

DEAR DR. LOVE,—It is a pleasure to me to answer your questions concerning the instruction of the Deaf in Denmark.

1. The cost per capita per annum is slightly different in the various schools in our country. It averages, however, at about £45 at the present moment. It has been constantly increasing.

2. There has been compulsory education of the deaf in Denmark since 1817, after the child has reached its eighth birthday. The school time is eight years.

3. A private oral school (Prof. J. Keller's) made, in 1860, an agreement with the Government to accommodate a certain number of State pupils, mostly semi-deaf-mute, who were to be taught orally, as that method would be more beneficial to that class, instead of placing them in the Royal Institution in Copenhagen, which used manual methods exclusively. This institution proving later to be too small to accommodate all deaf pupils of school age in the country, the Government erected a new institution in Fredericia, where Prof. G. Jorgensen became principal, and the best part amongst the congenitally deaf were placed there and taught orally. This institution was opened in 1881, and was enlarged ten years later, when the Ministry for Public Instruction resolved that two-thirds of the congenitally deaf—the best and medium gifted children—ought to be educated orally (as the result with the best of the congenitally deaf had proved very satisfactory). After that time it is only the less intelligent (one-third) part of the congenitally deaf that is sent to the Copenhagen institution and educated manually. Keller's private school was transferred to Nyborg in 1891, and became from that time a State institution, and all the semi-deaf-mute continued to be placed there.

4. It may be said that almost all our former pupils use their speech as the essential means of communication with those around them, which statement is also corroborated through the answers in blanks, which are filled by the parochial clergymen in all towns outside Copenhagen and returned to the deaf schools annually. There may be some few instances where a former pupil supplants [supplements?] his or her ineffective speech with signs, if constantly living among others educated after the silent method; however, such instances are almost unknown.

5. We have [at Nyborg] several pupils we wanted to place in a special department for slow or feeble-minded deaf, if such was at hand. But they ought to be taught orally also in such a department for backward deaf children, owing to their generally having a considerable amount of hearing. Our wish here is that we could classify our semi-deaf and semi-mute, and have two parallel groups—"A" class and "B" class—similar to what is practised with the congenitally deaf.—With kind regards, yours sincerely,

G. FORCHHAMMER.

DR. J. KERR LOVE,
Olrig, Pollokshields, Glasgow.

The following American schools were visited by the writer during May, 1906:—

Pennsylvania Institution, Mount Airy, Philadelphia (Principal, Dr. Crouter).—Five hundred and ten pupils. Here the system of education is oral in 94 per cent, only 6 per cent being regarded as unfit for oral training. The general intelligence of the school is very high. The speech of the semi-deaf and semi-mute is very good, and

the lip-reading of the school is very good. The children are bright and anxious to talk. The speech of the totally deaf is also good, but of course their voices are not so well intoned as those of the semi-deaf. Many of the deaf-born are very bright and intelligent. The school course is ten to twelve years. The cost per head is £60 per annum. The trades department is the best I have seen anywhere, and is probably the best in the world. Here are some of the items of work done by the pupils in the year 1905. The class in baking made all the bread consumed, some 120,000 lb., all the buns and biscuits, and all the plain and fancy cakes. The class in plastering and stonework repaired the ceilings and walls in various parts of the buildings, built two large closets, rebuilt a culvert and retaining walls of the stone bridge on the main drive, &c. The class in woodwork wainscotted several large rooms and a hallway, refitted the shoe shop, made a number of closets, bookcases, large chairs and settees, laid flooring, put up partitions, brackets, or steel ceilings in various parts of the buildings. The classes in tailoring, dressmaking, and shoemaking attended to the usual sewing of the household and provided all the shoes required for the year's wear.

Home for the Training in Speech of Deaf Children before they are of School Age, Bala, Philadelphia (Principal, Miss Garrett).—Sixty-two pupils. Deaf-mute children are usually of poor parentage, and no attempt is made to begin their education till they enter the institutions at 6 or 7 years old. Between the ages of 2 and 7 the hearing child is rapidly developing, the deaf child is at a standstill, and I have shown that as a consequence the deaf child's head is smaller than the head of the hearing child. This school takes the child at 2 or 3 years, and educates him by the oral method till he is able to enter the schools for the hearing. It must, therefore, be considered apart and not compared with other American schools. I found the children very anxious to talk to me; they spoke and lip-read very well. Altogether, I thought Miss Garrett's work admirable. I think it is sure to be copied in other countries.

Gallaudet College, Washington, D.C. (Principal, Dr. Gallaudet).—One hundred students. This is really a university for the deaf, and its students are the best from the deaf schools of America. The College grants degrees, and has demonstrated that many of the deaf are capable of high intellectual work. The combined method is followed here, but there is very little oral training carried on. In America where both systems exist side by side, the one college which exists must, of course, use the combined method. Some of the orally taught deaf of America go to the ordinary universities. I should rather see special arrangements made at the existing universities of our own country than see colleges for the education of the deaf founded.

Kendall School for the Deaf, Washington, D.C.—Fifty pupils. Contiguous to Gallaudet College, and under the care of Principal Gallaudet. There is hardly any oral training in this school, and I

saw no proof that the school produced either specially intelligent or particularly good language pupils. The classes are small.

Belleville Institution, Ontario, Canada (Principal Mathieson).—Two hundred and fifteen pupils. This is a "combined" school, and but little oral work is attempted. The course is seven to eight years. Canada is peculiarly fitted for the deaf-mute. It is labour which is wanted there more than anything else, and, during the short school course existing at Belleville, it is possible to make the deaf child fit to earn a living with a certainty not known in Britain. The school course is too short for anything but the production of wage-earners, and the classes are too large. But the Principal accomplishes his avowed object, viz., to make his deaf children earn a living in a country where labour is plentiful and workmen scarce. Aside from the question of system, the school is one of the best managed on either side of the Atlantic. The cost per head is £43 per annum.

Horace Mann School, Boston (Principal, Miss Fuller).—This is a day school of one hundred and fifty pupils. This is a school for the semi-deaf and semi-mute to a larger extent than any I have seen. Many of the pupils have been at "hearing" schools, and have come to this school afterwards. The general intelligence of the children is good, and, at least in the higher classes, the speech and lip-reading are good. At a small school, near Boston, young children are boarded in a family home, and taught after the manner adopted by Miss Garrett. A few day scholars also attend this school.

Clarke School for the Deaf, Northampton, Massachusetts (Principal, Miss Yale).—One hundred and fifty pupils. This is a typical oral school. The course is ten to twelve years, and some of the pupils go to the universities for the hearing. None go to Gallaudet College. The speech and lip-reading right through the school are good. The intelligence in the Primary Department is good; in the Intermediary Department, a little disappointing; but in the Highest or Grammar Department, again, very good. I thought I detected in the Intermediary Department the effect of pure oral training in the form of a lagging behind of the general intelligence, but after the sixth school year this had disappeared, and in the highest classes I was favourably impressed with the ultimate effect of oralism. Here, as elsewhere, the semi-deaf are easily picked out, and the proportion of them increases as one gets to the highest classes. The cost per head is £60 per annum.

Washington Heights Institution, New York (Principal Currier).—Five hundred and eight pupils. This is a "combined" school, but the Principal describes himself as an "eclectic," and the school is one in which a classification is carried out to some extent, viz., some of the semi-deaf and semi-mute are in separate classes, and are taught by the oral method alone. The Principal thinks all the semi-deaf and semi-mute, however dull in intellect, should be taught orally. He advocates the practice of speech also on hygienic

grounds, and believes that speech by the deaf diminishes consumption amongst them. The discipline of the school is excellent. A special feature of the work is the thorough drill to which the boys are subjected, and which, I have no doubt, makes them healthier and more manly American citizens. The school is one of the most interesting in the Eastern States, and is magnificently appointed. The cost per head per annum is £67, 10s.

Lexington Avenue School for the Deaf, New York (Principal Gruver).—Two hundred and eighteen pupils. This is an oral school, composed of the same material as the Washington Heights School, viz., the dumpings of all the nationalities of Europe. The system is oral, so there is no attempt to deal separately with the semi-deaf or semi-mute. There are about 10 per cent mentally deficient children, but the Principal says these would fail under any system. The speech and lip-reading are good, the intelligence of the children is good, in the higher classes very good—better, I think, than in the higher classes of “combined” schools. The cost per head per annum is £60.

THE DIFFUSE HYPERPLASTIC LARYNGITIS AND PHARYNGITIS OF CONGENITAL SYPHILIS.

By A. BROWN KELLY, M.D., D.Sc.,

Surgeon for Diseases of the Throat and Nose, Victoria Infirmary, Glasgow.

THE various forms of hyperplasia found in the pharynx or larynx in late hereditary syphilis may be conveniently classified as follows:—

1. Hyperplasia associated with ulceration; frequently seen as thickening at the periphery of ulcers or scars.

2. Hypertrophic granulations and papillary excrescences, which may or may not be preceded or followed by ulceration; the condition is oftenest seen on the epiglottis, and resembles lupus.

3. Tumour-like hyperplasia.

4. Diffuse hyperplastic infiltration.

I intend to deal here with the last-mentioned variety almost entirely. Owing to the lack of reference to the subject in text-books on diseases of the throat, an account of the following case may be instructive:—

Harry —, aged 7 years, was sent to me in August, 1900, by Dr. J. R. Riddell. Since March of the same year his breathing had been noisy, especially at night; his speech had become slightly indistinct, although the voice remained clear;

there had been occasional scanty epistaxis; and his general health, previously excellent, had suffered considerably. He had no pain or difficulty in swallowing, and there was no history of his having had sore throat.

I found the boy well grown, but thin and pale, breathing rather rapidly, with loud stridulous inspirations. On examining his pharynx, the uvula, excepting a small normal portion at the tip, and the mesial part of the soft palate were seen to have undergone a marked uniform thickening. The infiltrated area was smooth, pale, and of a hard fibrous consistence, so that the enlarged uvula formed a firm, unyielding mass. There was no ulceration. The pharynx was not otherwise involved. The nose and naso-pharynx were normal. The epiglottis was also normal. The arytenoids, on the other hand, were greatly changed, and formed two large, pale, smooth masses, which pressed closely together and moved but slightly on phonation and deep inspiration. The upper orifice of the larynx was thus reduced to a small triangular opening between the infiltrated arytenoids and the epiglottis, and was too small to allow of inspection of the parts below. None of the stigmata of congenital syphilis were present.

The condition in the pharynx and larynx was regarded as syphilitic, a view which found confirmation in the family history. The child's father had contracted syphilis, but the mother had never manifested any signs of the disease. She had had two miscarriages and eight children, five of whom died in infancy. All the children, when a few weeks old, had presented eruptions, some of which, *e.g.*, pemphigus, were undoubtedly specific. My patient, when an infant, had ailed intermittently, and mercurial inunctions and grey powder had been administered for "spots" on his skin. Since he was six months old, however, he had been well until the onset of the laryngeal symptoms above described.

Mercurial inunctions, and subsequently iodide of potassium, were prescribed, with the result that his general health improved, and his breathing became slowly less noisy. Six months after coming under observation, the respiration was quiet, the infiltration of the palate was much less, and the entrance to the larynx was slightly freer, although considerable stenosis still persisted, as is shown in the drawing (Fig. 1) which was made at this date. The patient was examined two years later, and the appearances were practically unchanged.



FIG. 1.

After he had been two months under treatment, the greater part of the enlarged uvula was removed, and submitted to Dr. A. R. Ferguson, now Professor of Pathology, Medical School, Cairo, whose report on its microscopic structure follows:—

"The uvula (submitted entire) was divided by a median longitudinal incision, fixed in saturated solution of corrosive sublimate, and embedded in paraffin in the usual manner. Sections were prepared parallel to the cut surface, and included the entire uvula. The nuclear stain employed was Mayer's hæmalum, and eosine, eosine and orange, and Von Gieson's fluid were used in combination with this. The microscopical characters are as follows:—

"*Low power.*—The epithelium is increased in thickness. There is a well-marked keratinous layer, which at parts has quite a corneous character. No stratum lucidum is visible. The papillæ of the Malpighian layer are in the main well preserved, and the columnar layer of cells proper to this layer is observed throughout. The basilar membrane is well seen at parts, and where invisible is rendered so by inflammatory changes beneath. Practically the whole subepithelial zone of tissue is occupied by a very cellular granulation tissue, in which at parts dense collections of leucocytes apparently are visible. In this zone, which does not extend very deeply, the vessels are of small size and very numerous. The more central portion is composed largely of a fairly fibrillated and rather scantily nucleated connective tissue, in which are visible the lumina of vascular channels. These latter are less abundant here than in the subepithelial inflammatory zone noted above. They are in every case either surrounded by, or in close lateral relation to, dense clusters of cells possessing the characters of those seen in granulation tissue. There is a considerable amount of mucous gland tissue present towards the base of the uvula. The acini, which appear normal in every respect, are lined by columnar cells with completely distended or ruptured walls. The irregular cellular infiltration noted round the vessels is entirely absent from the interstitial tissue of the glands.

"*High power.*—The corneal layer is relatively broad, with elongated narrow nuclei; the stratum granulosum is reduced to a single layer, with the characteristic appearances. The cells of the Malpighian layer are somewhat compressed, and where the epithelial covering is thinnest are interrupted by leucocytes apparently making their way towards the surface. The tissue immediately beneath possesses generally throughout

the characters of a fairly vascular granulation tissue, the degree of cellularity of which varies very considerably. In the less cellular parts the oval or spindle-shaped cells met with in organising connective tissue are comparatively abundant. In the more richly cellular portions the nuclei are small and rounded, and more resemble those of lymphocytes. The ground substance of this tissue is either homogeneous or very faintly granular, and shows no fibrillation. The subepithelial zone in which this tissue occurs is nowhere extensive, and passes rather abruptly into richly fibrillated and rather sparsely cellular connective tissue. The cellular areas around the vessels in the central parts of the uvula consist of leucocytes and young connective tissue corpuscles, with a scanty and finely fibrillar intercellular matrix. There are nowhere appearances of arterial thickening or of endarteritis."

It should be mentioned that the microscopic appearances just detailed resemble those of subglottic hypertrophic laryngitis, and of sclerotic hyperplasia, as pointed out in a paper on the latter affection published in the *Lancet*, 6th April, 1901.¹ The microscopic examination of the uvula from the man with sclerotic hyperplasia differed from that of the child's uvula in the above case of congenital syphilis in the following respects:—(1) The epithelial covering in the man's uvula was compressed, thin but dense, and without papillæ; in the child's, it was increased in thickness, and the papillæ were marked but not exaggerated. (2) The granulation tissue zone beneath the epithelium in the adult was more regular, less cellular, and with less inflammatory element. (3) Slight whorling of the connective tissue surrounding the arteries in the man's uvula. (4) Marked inflammatory infiltration of the glandular interstitial tissue in the man's uvula, which was completely absent in the child's.

The features worthy of special attention in the case of congenital syphilis reported above are (1) the uniform and symmetrical character of the infiltration; (2) the absence of ulceration; (3) the tendency of the infiltrated region to become oedematous and produce more or less laryngeal stenosis; (4) the persistence of the hyperplasia in spite of antisyphilitic treatment.

In several of these respects a contrast is presented to the appearances usually observed, and the course commonly followed in hereditary syphilis. I have been able to find records

¹ A. Brown Kelly, "Sclerotic Hyperplasia of the Pharynx and Nasopharynx," *Lancet*, 1901, vol. i, p. 995.

of only a few similar cases which, given in an epitomised form below, may assist in the conception of the clinical picture. The first three were reported by J. N. Mackenzie,¹ in an excellent monograph on congenital syphilis of the throat, under the term chronic interstitial laryngitis.

1. Boy, aged 15 years, suffering from dysphagia, hoarseness, and slight dyspnoea. Considerable destruction was found in pharynx, due to ulceration. Epiglottis was greatly thickened, and aryepiglottic folds, arytenoids, and ventricular bands were swollen. No sign of ulceration, and no cicatrices. The uniformly thickened laryngeal membrane presented a dull, lustreless, pale-red appearance. Three months later the hyperæmia was less, but the hypertrophy remained unaltered.

2. Girl, aged 12 years, presented ulceration and necrosis of palate, and cicatrices in pharynx. The mucous membrane of the larynx was uniformly thickened and hyperæmic. Three months later the ulceration was healed, and patient cured. The thickening of the laryngeal membrane remained unaltered, but its congested condition had disappeared.

3. Syphilitic child. Ulceration of tongue. Uvula and greater part of soft palate destroyed. The mucous membrane of the entire larynx was uniformly hypertrophied, and presented a dirty, yellowish-red appearance. The vocal cords were swollen, sluggish, and congested. The child was rapidly improving under iodide of potassium.

4. Jacob's² case. A child from a fortnight after birth presented manifestations of congenital syphilis. When about 5 months old, cough and huskiness set in, and laryngeal obstruction soon supervened, demanding tracheotomy, but the child died. At the necropsy no marked change was observed in the upper compartment of the larynx, but below the cords the lumen was reduced to a mere chink by swelling and thickening of the mucous membrane, which extended about three-quarters of an inch downwards. Microscopically, the thickening was seen to consist of a mucous membrane greatly thickened by interstitial deposit of connective tissue, as well as by hypertrophy of the gland tissue. There was an entire absence of ulceration.

5. Eröss's³ case. Child, aged 3½ years. Hypertrophy of mucous membrane of entire larynx. Epiglottis depressed,

¹ J. N. Mackenzie, "Congenital Syphilis of the Throat," *American Journal of the Medical Sciences*, October, 1880, p. 521 *et seq.*

² Jacob, *Lancet*, 1887, vol. i, p. 420.

³ Eröss, *Jahrbuch f. Kinderheilk.*, vol. xv, S. 139.

thickened to three or four times its normal, and horse-shoe shaped. Aryepiglottic folds and left false cord greatly thickened, the latter bulging at the middle, and dark red.

6. Compaired's¹ case. Boy, aged 5½ years, had had hoarseness, cough, and noisy respiration for over five months. On several occasions suffocation threatened. In the larynx there was a generalised hypertrophic state of the mucous membrane, affecting chiefly the aryepiglottic folds.

The above reports show that the laryngeal appearances of diffuse hyperplasia warrant special attention on account of their rarity, and their liability to be wrongly diagnosed. Errors are especially apt to arise when, as in my case, no other sign of congenital syphilis was present and the condition was acute.

It must be remembered, however, that while it may be convenient clinically to distinguish between circumscribed and diffuse hyperplasia, with and without ulceration respectively, no strict classification of this kind is possible, for the various conditions may be associated or may pass into one another. Thus, in my patient the use of the laryngeal mirror sometimes caused minute hæmorrhages from the thickened palate, a fact which, taken in conjunction with the microscopic aspect of the uvula, showed that ulceration of the surface might readily have occurred.

The association of diffuse hyperplasia with superficial ulceration has been observed by Semon,² who was probably the first to direct attention to this particular manifestation of congenital syphilis of the larynx. In 1880 he showed at a meeting of the Pathological Society of London the larynges of two brothers who had been subjects of congenital syphilis, and had died within three weeks of each other of the same acute complication of the primary disease, namely, acute laryngeal œdema. In the case of the older boy, aged 5½ years, the entire larynx presented a general hyperplastic change, with superficial ulceration. The hyperplasia was especially marked in the epiglottis, the aryepiglottic folds, and the inter-arytenoid fold. There was also acute œdema of the epiglottis and the aryepiglottic folds. The chronic thickening and acute œdema caused the opening into the larynx to be so narrowed as scarcely to admit the tip of a lead pencil. The true and false

¹ C. Compaired, "Laryngite Hypertrophique Syphilitique," *Annales des maladies de l'oreille*, &c., 1899, vol. i, p. 353.

² F. Semon, "Two Cases of Congenital Syphilis of the Larynx," *Trans. of the Path. Soc. of London*, 1880, vol. xxxi, p. 41.

cords were destroyed by ragged ulcerations. The larynx of the younger boy, aged $3\frac{1}{2}$ years, presented acute œdematous infiltration of the vocal cords, ventricular bands, and interarytenoid fold. The aryepiglottic folds were less infiltrated, and the epiglottis had nearly escaped.

In both cases there were numerous shallow ulcerations of the mucous membrane in the interior of the larynx, but in the younger boy the chronic changes were less, and the acute ones more developed than in his brother.

Further, the hyperplasia may at any time become the seat of a gumma, or circumscribed hyperplasia may be present in one part of the larynx and deep ulceration or cicatrization in another. A comparatively large number of such cases has been described and collected by J. N. Mackenzie, Strauss,¹ and others. The accompanying drawing (Fig. 2) depicts the



FIG. 2.

permanent laryngeal appearances in a case falling under this category. The upper part of the epiglottis is gone, the remainder is much infiltrated and scarred; the posterior wall is irregular; a tumour-like projection passes from the right false cord, and prevents the perfect approximation of the vocal cords. Specific treatment produced no effect

on the size of this outgrowth, and the resistance offered by its hard texture was such as to render impossible its reduction by ordinary laryngeal cutting forceps.

Congenital syphilis of the larynx must be regarded as an affection of extreme gravity, if one may judge from the large proportion of reported cases that has died of suffocation, or been rescued from death by tracheotomy. Even after the patient has been under treatment, and is comparatively free of danger, œdema may rapidly develop and cause suffocation. Sturge² lost a boy who had been treated for seven months with benefit. One day the child was on his way to the hospital when a somewhat violent gust of wind seemed to take away his breath (? spasm), and he died before assistance could be rendered.

Diffuse hyperplastic changes in the larynx are probably those that menace life most. Such at least is J. N. Mackenzie's

¹ H. Strauss, "Ueber Lues tarda laryngis im Kindesalter," *Archiv f. Kinderheilk.*, Bd. 14, S. 312.

² W. Allen Sturge, "Ulcerations of the Larynx due to Congenital Syphilis," *Trans. of the Path. Soc. of London*, vol. xxxi, p. 39.

opinion, and support is afforded it by the death of Jacob's and of both Semon's cases, and by suffocation threatening several times in Compaired's patient and my own. The latter on one occasion was sent hurriedly to the infirmary to have tracheotomy performed, which was rendered unnecessary, however, by the subsidence of the œdema.

In a number of the cases recorded of congenital syphilis of the larynx, the pharynx has also been involved. As a rule there has been ulceration, leading to destruction of less or more of the palate, uvula, faucial pillars, &c. In a few instances, however, the manifestations resembled rather those in my patient. Thus, in one of Semon's patients the uvula was thickened and congested, and in Strauss' first case the uvula was thickened and presented a superficial plaque-like ulceration.

In tertiary syphilis hyperplasia may occur secondary to ulceration as granulations, papillary excrescences, and tumour-like formations, which may or may not be preceded by ulceration, and as subglottic hypertrophic laryngitis. On the other hand, the diffuse symmetrical hyperplasia of congenital syphilis involving the supraglottic region has no counterpart in tertiary syphilis. This would seem to form a distinction between acquired and inherited syphilis, which possibly arises from differences in the tissues of the two classes of subjects.

It should, therefore, be kept in view that a symmetrical hyperplasia of the laryngeal mucous membrane, unaccompanied by ulceration, may appear as a manifestation of congenital syphilis in a patient presenting no other sign of the diathesis, in whom only slight improvement is obtainable by anti-syphilitic treatment.

ARTERIO-VENOUS ANEURYSM OF THE NECK CAUSED BY GUNSHOT WOUNDS: REPORTS OF TWO CASES, ILLUSTRATING THE TENDENCY TO SPONTANEOUS CURE.¹

By ARCH. YOUNG, M.B., C.M., B.Sc.,

Surgeon to Out-patients, Glasgow Western Infirmary; late Civilian Surgeon, South African Field Force.

AT the request of Mr. G. H. Makins, C.B., F.R.C.S., I visited in Glasgow a year ago two men in whom he was interested, who were the subjects of arterio-venous aneurysm, and who received the injuries eventuating in that condition in the early part of the South African War, viz., at the Modder River and Magersfontein engagements.

Mr. Makins had been interested in both cases from the earliest period, and had himself observed their progress a year after the injuries were received. Major (now Lieutenant-Colonel) Geddes, D.S.O., R.A.M.C., examined and reported on them again in the beginning of 1904, *i.e.*, over four years after the reception of the wounds. A year later I examined and reported on the two cases, bringing the records, therefore, up to a period of nearly five and a half years from the date of injury.

To-night I am able to bring the records up to a period of nearly six and a half years from the initial injury, and, through the kindness of Mr. Makins, I have been permitted to bring the patients before the Society at this meeting.

The cases may be said to be interesting for two reasons—(1) because they both exemplify very well the satisfactory tendency to natural cure; (2) because each represents one of the two main forms in which arterio-venous aneurysm may occur, viz., aneurysmal varix and varicose aneurysm.

Regarding the latter (2) it may be stated shortly that by aneurysmal varix is meant a condition in which a large artery communicates more or less directly with a vein, the venous trunk and branches under the influence of the raised (arterial) pressure becoming dilated and pulsatile; while a varicose aneurysm is a lesion in which the opening between artery and vein is less direct, some sort of sac existing between and (or) around them, this sac being adventitious and consisting of

¹ Paper read and patients shown at a meeting of the Glasgow Medico-Chirurgical Society held on 20th April, 1906.

cicatricial, more or less laminated, fibrous tissue, or altered clot.

It will be understood that not only is the tendency to natural or spontaneous cure less marked in the varicose aneurysm, but that, indeed, the very presence of the intervening sac implies a degree of permanence or persistence of some form of gross tumour.

The details of the two cases I shall give in outline. For them I am indebted, in the main, to Mr. Makins's writings, firstly, in the chapter on "Injuries to the Blood-vessels," of his volume on his *Surgical Experiences in South Africa, 1899-1900* (London: Smith, Elder & Co., 1901), and, secondly, in a paper contributed by him to the *Journal of the Royal Army Medical Corps*, June, 1905, in which he gave the "Further History of Five Cases of Arterio-venous Aneurysm of the Neck, with some Remarks on the Condition generally, and its Treatment." To this paper my reports on the two cases were contributed, and I am now able to report progress on each for another year.

CASE I.—*Aneurysmal varix of innominate.*

J. C., wounded at Modder River; Mauser. Entrance wound close above the left clavicle, at posterior margin of left sternomastoid muscle; exit wound about an inch below right anterior axillary fold, in the anterior axillary line; bullet track across upper part of thorax; slight hæmoptysis, probably from a wound of the lung, persisted for four days; patient moved at end of four days from the field hospital, by train, to Orange River—a journey of 55 miles, which took four hours.

Condition at this time.—Fulness over an area roughly circular and $2\frac{1}{2}$ inches in diameter, of which the right sternoclavicular joint was the centre; faint pulsation palpable over this area, also a strongly-marked thrill; a loud systolic bruit audible in the same region; no pain or dyspnœa; radial pulses equal; right pupil larger than left; right eye partially closed, but could be opened by special effort of levator of the upper eyelid. Patient shortly afterwards sent down country to the base.

Condition (as seen at base) twenty-five days after the injury.—Little change had occurred; fulness largely gone; thrill more marked; typical "machinery murmur" had developed, transmitted along both carotid and subclavian arteries; evidence of mediastinal hæmorrhage now present—discoloration of upper part of anterior abdominal wall, below ensiform

cartilage, and extending over the lower costal margin; no headache.

Patient sent home to Netley in January, 1900. Seen by Mr. Makins in Glasgow a year later.

Condition at this time.—Patient at work as a lamp-trimmer; complaint of attacks of dyspnœa (1) on exertion, (2) often about six o'clock in the evening from no obvious cause; pulse 100 in erect posture, and 84 to 88 when seated; right pupil still dilated; palpebral fissures now symmetrical; prominence at root of right sterno-mastoid, and of sternal third of the right clavicle; pulsation palpable beneath the muscle, but no definite evidence of a sac; purring thrill less obvious; "machinery murmur" less loud, more limited in distribution, and no longer audible to the patient himself.

Mr. Makins then regarded the condition as much improved, and thought the prominence of the sterno-mastoid and clavicle might possibly be due either to injury to the bone or to an aneurysmal sac spontaneously consolidated.

Report on condition in February, 1904 (four years and four months after the initial injury), by Major Geddes, D.S.O., R.A.M.C.—Dyspnœa occasionally still, especially in the evening; pupils react equally; vision dim; pulsation visible in right supraclavicular fossa; no tumour; no thrill; "machinery murmur" audible to the patient only when lying with his right cheek on pillow at night; radial pulses equal, 100 to 140 per minute.

Report by myself on condition in April, 1905 (five years and six months after the initial injury. Extracted from Mr. Makins's paper in the *Journal of the Royal Army Medical Corps*, June, 1905).—"The man is in regular employment as an arc lamp-trimmer, works about five hours a day, and on every day in the week. Since his return to Glasgow from South Africa he has kept very well, and for the past three years has been off work on account of illness on only two occasions—three days about a month ago, and four days two years since, the ailment each time being merely 'cold.'

"He feels well enough, and quite up to his work. The shortness of breath which he had for a time after coming home has been quite absent for at least six months. He can climb the 18 to 20 feet ladder which he uses in the course of his work without any breathlessness, and he has no trouble in climbing the two flights of stairs to his home. His appetite is evidently not all it might be, and he says he sleeps badly, though considering the constant alteration in his working hours this is, perhaps, not unnatural. Very occasionally he

suffers from frontal headache of a mild type—it is bilateral, and not evidently related to any special cause. He has no cough or hoarseness, or difficulty in speech or swallowing.

“About once a day, from no obvious exciting cause, and occurring at quite irregular intervals, a pain shoots suddenly from about the middle of the right supraclavicular fossa, along the inner half of the clavicle, to the region of the right sterno-clavicular joint. It is of only moderate intensity, and quite transient.

“The right pupil is still somewhat larger than the left, but it seems to react quite well, both to light and for accommodation. Ocular movements seem normal. The palpebral fissures on the two sides are alike and normal. For some temporary dimness of vision he was a patient at the Glasgow Ophthalmic Institution about a year ago for several months. From the condition which then led to his going to that institution he states he has now fully recovered, and he has no eye trouble now.

“His heart dulness is little altered from the normal, perhaps a little enlarged to the left. The heart sounds at the apex are almost pure, but a slight suggestion of systolic bruit can be heard. At the base it is more distinctly heard, but by no means well until the stethoscope is carried either out along the right clavicle for about 3 inches, or else upwards upon the right sterno-mastoid muscle for about $1\frac{1}{2}$ inch. The systolic bruit is not heard high up in the neck, nor is it more than faintly heard upon the left side. It is not audible over the axillary or brachial arteries on either side.

“There is *practically* no machinery murmur (indeed, I believe I would be justified in saying *absolutely*) either heard by the patient or to be heard by the examiner.

“There is slight visible pulsation in the right supraclavicular fossa, but none in the left or in the suprasternal notch. The pulsation seen here is, on palpation, found to have a distinct expansile character. The right anterior jugular vein is not visible, but the external jugular is somewhat prominent. It is quite patent, and evidently playing a much more important part than the left. There is no thrill. The prominence of the lower part of the right sterno-mastoid muscle still exists, but is not great. Nor is there great prominence of the sternal end of the clavicle.

“The pulse at rest (sitting posture) numbers 80; in the upright position, 96; after a brisk walk from one end of the room to the other and back again, 104 per minute. Respirations are quiet and regular, about 16 per minute.

"The man has quite a notable degree of lateral spinal curvature, the convexity being towards the right in the upper dorsal region.

"A limited area, including the sternal one-third of the right clavicle and the region above, and for $1\frac{1}{2}$ inch below it, is relatively dull to percussion, but it is not strikingly so—only when contrasted with the left side.

"There is evidence, it seems to me, of some aneurysmal enlargement about the junction of innominate with right subclavian, but it can hardly be of much size, and is certainly not progressing. The earlier venous communication must be, I should think, completely cut off now, and is evidenced by nothing beyond some disproportionate distension of one of the right superficial cervical veins, viz., the external jugular."

Condition as at this date (20th April, 1906, six years and six months from the initial injury).—Headache is now entirely gone; paroxysmal pain is very slight and infrequent, perhaps once a month, and purely episternal in localisation; appetite not yet all that it might be; sleep not quite satisfactory, hours, however, still irregular; there is little or no breathlessness—the man lives in a house three stairs up, and these can be negotiated without any notable difficulty; "machinery murmur" quite absent, and pulsation practically gone; external jugular vein less visible. The man, in fact, feels well and fit for his work.

CASE II.—*Arterio-venous (varicose) aneurysm at root of right carotid.*

A. T., wounded at Magersfontein; Mauser. Entrance wound in centre of right infrapinnous fossa; exit wound between the heads of the right sterno-mastoid muscle, three-quarters of an inch above the clavicle; range, 200 to 300 yards; bullet track across chest; after injury was received ran 200 yards to seek cover; no serious immediate external hæmorrhage; hæmoptysis and dysphagia for two days; right radial pulse noted to be diminished; evidence of damage (probably contusion) to right ulnar nerve observed—weakness in flexion of fingers, hyperæsthesia over peripheral distribution of nerve; right pupil greater than left. Sent down soon after to the base.

Condition (as seen at base) twenty-four days after the injury.—Pulsating swelling—extending $1\frac{1}{2}$ inch upwards beneath the right sterno-mastoid muscle, 2 inches downwards over the first (right) intercostal space, and from the middle line of the neck backwards to the centre of the right posterior triangle; dulness to percussion over this area; some evidence

of a thin limiting wall; swelling soft and yielding; purring thrill (widespread and well developed) palpable for some distance into the distal vessels, especially in the line and course of the right anterior jugular vein; thrill very superficial and easily extinguished by local pressure; felt readily in posterior triangle, but impalpable in the suprasternal notch [this was then regarded as favouring the localisation of the arterio-venous aneurysm to the subclavian artery and vein]; "machinery murmur" audible over swelling and over almost the whole of the thorax, also distally as far as the temporal, and the brachial at the bend of the elbow; right pupil larger than left, but reacting normally; right radial pulse good, but smaller than left; no pain or difficulty in swallowing; weakness in flexion of fingers of right hand still persistent, also impairment of peripheral ulnar sensation.

Condition three weeks later.—No material change, except perhaps that the swelling was softer, and the thrill more superficial.

Two months after injury patient was sent home to England. Seen by Mr. Makins in Glasgow a year later.

Condition at this time.—Patient living at home, and out of employment; dyspnoea on exertion complained of; when mounting stairs felt "as if heart going to leave him"; aneurysm considerably altered; walls dense and firm; extending $2\frac{1}{2}$ inches upwards, in line of carotid artery, beneath sternomastoid muscle, projecting beyond the posterior margin of the latter; larynx displaced half an inch to left of middle line; voice husky but stronger; purring thrill very superficial, but less marked, and of more limited distribution; palpable chiefly over subclavian vessels; "machinery murmur" still loud, but less widely distributed; still audible to the patient when lying on his right side; heart dulness somewhat increased; apex-beat in sixth interspace in nipple line; pulse, 80 to 84 per minute; muscular supply of right ulnar nerve weakened; no wasting to speak of; sensation (ulnar) imperfect.

Report on condition in February, 1904 (four years and three months after the initial injury), by Major Geddes, D.S.O., R.A.M.C.—Aneurysm not increased; walls hard and firm; fibrillar twitchings of right deltoid muscle, which was thought to be wasting, as also remaining scapular muscles; ulnar muscles wasted; grip of right hand weak, indicating probably development of pressure on posterior cord of brachial plexus (the man himself stated that, about six months before, the neck appeared more swollen); aneurysm thought, therefore, to be not altogether stationary.

Report by myself on condition in March, 1905 (five years and four months after the initial injury. Extracted from Mr. Makins's paper in the Journal of the Royal Army Medical Corps, June, 1905).—"The man is still living at home, and seems to enjoy good health, apart from the disability connected with his injury. He has been able for some months to take charge of a carrier's van, which delivers small parcels over the city. This occupies him on three or four days in the week, from 9 till 11 in the forenoon and from 3 till 5 in the afternoon. He is careful never to lift anything heavy—in fact, he guards himself most carefully against all exertion. If he does at any time exert himself unduly he becomes short of breath at once, and is troubled with palpitation. At the same time (or under the same influence) the beating on the right side of his neck becomes unpleasantly emphasised. He resides at present in a third-flat house, and the climbing of the three flights of stairs, unless taken in most leisurely fashion, not only excites palpitation and makes him very short of breath, but is apt to induce an intense nausea. This is only occasionally followed by actual vomiting.

"The heart dulness is undoubtedly enlarged transversely, its left margin not much exceeding the normal, but the right reaching fully half an inch to the right of the sternum. There is no punctate apex-beat to be seen, but in the fifth and sixth interspaces and in the epigastrium there is general pulsation.

"The heart sounds over the apex are almost pure, though even there can be heard, somewhat obscuring the normal heart sounds, the systolic aneurysmal bruit. This becomes more and more apparent as the stethoscope is carried nearer to the base and over the sternum in the direction of the aneurysmal swelling. It is heard at its maximum intensity over the clavicle at its inner end, and is conveyed well up the neck and as far as the brachial at the bend of the elbow.

"I entirely fail to observe any 'purring thrill,' nor is there any evidence of 'machinery murmur.' With reference to this it should be stated that no such murmur is now audible to the man himself when lying on his right side. What he does hear is simply an exaggeration of the normal carotid pulse. Of this he is very clear.

"The radial pulses are not appreciably different in strength or rhythm, and, at rest, beat about 76 per minute.

"The sensory and motor distribution of the ulnar nerve is still distinctly impaired, but there is practically no sign of trophic disturbance.

"The man himself thinks his hand (right) somewhat stronger

than it was, but it is still pretty weak as compared with the left.

"The aneurysmal swelling is still very obvious. Its anterior, upper, and posterior limits are well defined, but its lower edge seems to pass behind the clavicle. The sterno-mastoid muscle passing over the sac gives it a bilobed appearance. Its greatest transverse measurement is $3\frac{1}{2}$ inches; its upper limit reaches the level of the upper edge of the thyroid cartilage. The inner edge reaches almost to the middle line, the larynx being displaced to the left to the extent of three quarters of an inch. The aneurysm has a firm resistant wall.

"The expansile pulsation is not only palpable but plainly visible, even when the man is entirely at rest.

"The same loud systolic murmur, already referred to as transmitted to other parts, is heard over the aneurysm. There is no enlargement of superficial veins. The pupils are equal and react normally. The voice is still husky, but seems quite strong.

"There is little or no episternal pulsation.

"Examined in the state of rest there is, in my opinion, now no clear evidence of venous disturbance. The symptoms and signs—the whole clinical picture—may quite well be explained with reference to a purely arterial lesion."

*Condition as at this date (20th April, 1906, six years and five months from the initial injury).—*Palpitation seems to have quite gone; "purring thrill" and "machinery murmur" have practically disappeared; the nausea felt formerly on climbing stairs now very rarely occurs; the systolic bruit is much less marked; the pupils are equal; there is still some dyspnoea on exertion, but it is not at all so marked.

The aneurysmal swelling is still visible, but is somewhat smaller; its greatest transverse measurement is 3 inches; its upper limit reaches less high than formerly (to the extent of fully half an inch); its inner edge is fully three quarters of an inch from the middle line. The bilobed appearance is less marked. Some expansile pulsation still exists.

The grip of the hand is still weak; the biceps, triceps, deltoid are distinctly, and probably all the other muscles are, in a minor degree, weakened. Ulnar sensation is still impaired.

Of this case it may be said that at the earliest stage Mr. Makins was of opinion that the injury probably implicated the innominate vessels. Later, it seemed likely that, to some extent at least, the root of the right subclavian vessels was affected, countenance being given to this view by the localisation of the main tumour in the posterior triangle, and by

the fact that the thrill was imperceptible in the episternal notch. On a review of the whole facts and the later history of the case, and after his examination of the man in Glasgow in the year following the reception of the injury, Mr. Makins concluded that, at anyrate, the root of the right carotid artery was involved.

This view seems to be borne out by all the facts, and by the anatomical and clinical features of the case, as they can be ascertained now by any of the members of the Society, and as my own examination has led me to appreciate.

These cases suggest a number of somewhat important considerations, to some of which brief reference may here be made.

Firstly, there is the question as to how in a given case the type of aneurysm is determined. The answer to this seems to be that the occurrence of an aneurysmal varix rather than a varicose aneurysm is probably dependent on an initial close approximation of the walls of the injured vessels, and the absence of any substantial primary blood accumulation at the site of the injury. I have already stated that the tendency to spontaneous cure is most marked in the aneurysmal varix, but not only in this form does it exist, as these cases show. Whatever the variety present, it will be seen that the tendency to cure may be substantially encouraged by artificial depression of the blood pressure, as by proximal ligation.

Secondly, it follows from what has been said that, where a definite aneurysmal sac exists, its location depends in great measure, as Mr. Makins has pointed out, on two main factors—(1) the probability of the spread taking place in the direction of least resistance; (2) the tendency to occupy space produced by any initial blood accumulation, usually in the exit portion of the track. The existence of a large initial blood collection has an important bearing, not only upon the production of the varicose aneurysm, but very directly upon the matter of treatment. It affects materially the prospects of satisfactory collateral circulation being established after proximal ligation of the injured vessels. Particularly is this so where extravasation is into a more or less confined space. In a case under my own charge it actually determined the occurrence of gangrene of the leg. The popliteal vessels were the ones injured, and the femoral vessels were ligated close above the knee, low down in Hunter's canal, twenty-four days after the injury. On subsequent dissection of the popliteal space all the articular vessels were found so

compressed that they could have contributed nothing towards the establishment of collateral blood supply.

Obviously, such a factor must be regarded as important also where the vessels affected are in the neck, though the element of pressure may in this situation be regarded as less important.

Operative treatment, if undertaken in cases of injury to the important vessels in the neck, must be regarded as greatly complicated by the intricate anatomical relations of the structures there, as well as by the difficulty, which is well exemplified by the second of the cases I have shown, of exactly localising the point of communication. Proximal ligation of the artery alone would seem to be the treatment affording best chance of success with the smallest risk, at least in the case of the neck vessels. Simultaneous ligation of the vein would imply considerable risk of cerebral trouble. Also, as these cases show, and as is borne out by other cases cited by Mr. Makins, as well as in the *Official Report on the Surgical Cases noted in the South African War, 1899-1902* (Section IX : Gunshot Injuries of Blood-Vessels, by Lieutenant-Colonel Sylvester, R.A.M.C.), the tendency to obliteration of the venous communication is a very real and definite one, which ought to be taken full advantage of. Besides, by proximal arterial ligation alone there is every probability of the varicose aneurysm being converted into a varix, which may at a subsequent period be treated with less risk, if thought necessary or advisable, even supposing the lowering of the arterial circulation procured by proximal ligation fails of itself to lead to spontaneous cure of the varix.

In this connection it may be said that Lieutenant-Colonel Sylvester, in his summary on treatment, states that "the method of treatment recommended in this report is ligature of the artery alone, above and below the communication with the vein." While this may be taken as representing what is probably, on the whole, the prevailing view amongst surgeons on the whole subject, and applying to injuries to the great vessels in all parts of the body, an exception must be made for the vessels of the neck and for the reasons stated. Local exposure of the aneurysm in this region, unless in special cases, has been shown by experience to be attended by very substantial risks as, for example, in the cases published by Mr. Henry E. Clark and by Matas.¹ Direct or local ligation

¹ Clark, *My Experiences in South Africa*; Matas, *Trans. Amer. Surg. Assoc.*, 1901, vol. xix, p. 237. (Both references quoted from Mr. Makins's paper.)

must in this region be, as a rule, departed from in favour of simple proximal ligation of the artery. In the first two cases recorded by Mr. Makins this was the treatment adopted for arterio-venous aneurysm of the carotid, and the results fully justified its adoption, for in the one case all trace of aneurysm had disappeared when the patient was examined in 1904, and in the other the patient was able to report himself in 1905 as so well as to be able to go out hunting and even to sustain a "good fall" without ill effects.

In the third case, operative treatment was refused, but the man was able to go back to active service. In 1904, however, he suffered a severe fall, as the result of which he died, apparently from rupture of the aneurysmal sac.

The cases which I have been able to show are the fourth and fifth of the series which formed the subject of Mr. Makins's paper in the *Journal of the Royal Army Medical Corps*, and they exemplify to my mind conclusively the fact that the non-adoption of active surgical intervention may, in such lesions, be advised with all confidence, and with every hope of the patient attaining, by means of natural or spontaneous cure alone, to a very real and substantial degree of comfort and usefulness.

NOTES ON SOME OPHTHALMIC CASES.

By ERNEST THOMSON, M.A., M.D., F.F.P.S.G.,
Surgeon, Glasgow Eye Infirmary; Ophthalmic Surgeon, Glasgow
Maternity Hospital.

CASE I.—*Retinal hæmorrhage consecutive to injury to the face.*

X. Y., aged 29, consulted me on 18th November, 1905, complaining that for ten days he has noticed that in certain directions of gaze he sees a red or brown haze over lights, referable to the left eye.

He gave a history of having what he called a fainting fit ten days ago. He fell and struck his face and temple; in particular, he bruised the bridge of the nose.

At the time of consulting me there was almost no trace of injury to the face, proving that the blow cannot have been a really severe one. On enquiry of his medical attendant, I found that X. Y. was inclined to alcoholic excess, and that he had had pericarditis; there had also been a presystolic mitral

murmur. The heart affection was, he said, now practically non-existent, and he did not think the so-called fainting fit was referable to it, but rather to other more plainly discernible causes. The urine contained no albumen other than might be accounted for by the presence of a gonorrhœa. On examining the fundi, I found a large solitary hæmorrhage, roughly about one and a half times the size of the disc, extending from the disc margin of the left eye in a temporal direction. It appeared to be situated mainly in the fibrous layer of the retina. It was bounded below by a sharp edge, but upwards and outwards had a markedly fringed border of extension between the nerve fibres. It appeared to have originated from a branch of the superior temporal vein. There was absolutely no other hæmorrhage, and no white spots were visible in either fundus. Both fundi, however, were hyperæmic. Refraction; low hypermetropic astigmatism; visual acuity—right, $\frac{4}{5}$; left, $\frac{3}{5}$; imperfectly. The patient was seen once a week, and the patch rapidly became smaller and is now gone (12th January, 1906).

The case seems to be interesting from the etiological point of view. There can have been no blow on the eye. Such a blow is denied by the patient, and negatived also by the absence of conjunctival ecchymosis. Therefore, if the bleeding was due to the accident at all, one almost has to think of some kind of *contre-coup*. If the hæmorrhage had nothing to do with the accident, its cause is still obscure, bearing in mind its large size and the fact that it was solitary; and it must have coincided pretty nearly with the date of the accident, both from the history of coloured vision and from the facts that it was obviously quite recent and cleared up very quickly.

CASE II.—*Good vision twenty-three years after perforation of the eyeball with a piece of metal.*

Jas. M., aged 52. This patient presented himself at the Glasgow Eye Infirmary with a foreign body on the right cornea. I noticed, however, that at the temporal margin of the right cornea there was a small leucoma, and I caught sight of a black spot near the periphery of the iris and just behind the leucoma. Suspecting that this black spot was really a hole in the iris, I questioned him, and found that twenty-three years ago this eye was blinded, as the result of an explosion, when a piece of metal, probably lead, entered the eye. The story of a complete blindness, followed by a very gradual recovery of sight, passing through stages of foggy

vision, and extending over months and years, was graphically told by the patient. On dilating the pupil and examining ophthalmoscopically and by oblique illumination, I found that the spot in the iris was really a hole, that there was a track of limited opacity through the lens behind the hole in the iris, and that there was a patch of choroido-retinal disturbance in the lower part of the posterior region of the fundus. I could not see any foreign body, and I presume it had passed through the eyeball and lodged in the orbit. The fundus was otherwise normal. Vision, unaided, $\frac{5}{18}$. Refraction; low myopia. The patient was lost sight of before an x-ray photograph could be taken.

Such a case as this is necessarily interesting, both because of its rarity and because of its bearing on prognosis. It is rare to find a foreign body penetrating the lens and leaving only a minute trace of its passage; it is rare to find a minute foreign body possessed of sufficient sharpness and travelling at such velocity that it can penetrate the eye from the outside, pass through the lens and vitreous, and again penetrate the eye from the inside. No sign of any foreign body was visible in the eye, and it would be unusual to find an eye remaining clear and quiet if it did hold a particle of metal. The intruder is presumably either embedded in the orbit or is sticking in the posterior part of the sclera.

As to the prognosis at the time of injury, one can easily imagine how bad it would be—a blind and more or less inflamed eye, a history of a penetrating wound. The wonder is that the eye was not removed then and there. And yet here it is, twenty-three years afterwards, quite healthy-looking and possessed of good vision.

CASE III.—*Hysterical amblyopia.*

Annie M'Q., aged 20, came to the Out-patient Department of the Glasgow Eye Infirmary with the statement that for two days she had not seen at all with the right eye. Vision—right, light and shade; left, $\frac{5}{12}$. Pupils reacting normally. Ophthalmoscopic examination—nothing in the fundus to account for the loss of vision. I concluded that the patient had made a mistake in her facts, and had merely discovered a previously amblyopic eye. A week later her mother came with her, and stated that the birth had been instrumental and very difficult. This further confirmed my diagnosis, which hardly appeared to be upset by the mother's firm statement that there had not previously been a defect of sight. The refraction of the left eye was corrected

with + 5 D sp. \ominus - .50 D cyl. Vision, $\frac{5}{8}$. A plane glass was ordered for the right eye.

A fortnight later the patient turned up with vision—right, $\frac{5}{8}$, in spite of a refraction error. Questioning soon elicited a hysterical history, and a correcting glass + 2.75 D \ominus - .50 cyl. was ordered for the right eye.

CASE IV.—*A case of bilateral ophthalmoplegia externa.*

Robert B., aged 43, roadman. This patient's trouble began five months ago with pain in the back of the head. Three weeks later objects looked at had an indistinct appearance, and five weeks later still the upper eyelids began to droop. Between the drooping of the lids and the blurred vision, he had had considerable difficulty with his work.

On examination the vision was found good with either eye separately. Vision—right, $\frac{5}{8}$; left, $\frac{5}{8}$. There was a considerable amount of ptosis; the pupils were normal-sized and reacted, though sluggishly. The tension was estimated as a soft normal. But the most striking point was that while the eye movements were good downwards, and outwards, and inwards, there was practically no upward movement obtainable by either eye; and when a strong effort was made to look up, the occipitofrontalis came into extreme action, and now and again the levatores palpebrarum succeeded in momentarily elevating the lids a trifle, while at the same time the left eye rotated outwards.

Examination of the double images proved the presence of a crossed diplopia with vertical separation, the vertical deviation being greater than the horizontal. The image corresponding to the left eye was situated below that of the right, to its right side, and with its upper end tilted to the right.

I found it impossible to diagnose by the double images exactly the muscles concerned in this case, owing to some muscles of both eyes being involved, and to the fact that some were probably only paretic. Clearly some branches of the third nerve and not others were paralysed; for instance, the intraocular branch to the sphincter pupillæ and ciliary muscles had escaped on both sides, but not the branches to the levators and superior recti. Probably the branch to the left internal rectus was paretic, but not that to the right internal rectus. While in the straightforward position the left eye diverged, but, on carrying the candle flame to the patient's extreme left, the diplopia became homonymous instead of crossed. As to the exact condition of the branches to the inferior obliques and inferior recti, it is difficult to say whether

they were normal or paretic. The fourth and sixth nerves were probably intact. There were no other nerve symptoms. There was no optic neuritis.

Examination of the patient's history did not lead to the cause of this illness. Syphilis was denied, as it usually is. He had never been off work except when he had influenza, twelve years ago, and occasionally with rheumatism. His employment was one involving exposure to all weathers.

Upon general principles, the patient was put upon mercury and iodide. Four days later there seemed to be slight upward movement when a sudden effort was made. Twelve days from the commencement of treatment the left levator palpebræ had partially recovered. Both eyes could be rotated upwards a little. Still diplopia. Twenty-six days from commencement of treatment the right levator was recovering, and upward movements were better; and by three months, when he was next seen, the levators had completely recovered, and upward movements were very greatly improved. There was still some diplopia in the vertical direction, but not in the horizontal (recovery of left internal rectus), and the patient was very pleased with progress.

I think one may suggest that the lesion in this case was syphilitic. Where was it situated? There is only one possible place in which a single lesion can produce multiple paralysis and paresis of the third nerve on both sides, with retention of power in the ciliary and sphincter pupillæ muscles, and that is in the nuclear region from which these nerves originate, the floor of the aqueduct of Sylvius.

Obituary.

JAMES FINLAYSON, LL.D., M.D., F.F.P.S.G.

THE death of Dr. Finlayson leaves to many a blank which simply cannot be filled. It can justly be claimed that he was one of the most representative physicians of our time and country, and in one capacity or another he must have been known to an immense number of people, particularly among our own profession. As physician, teacher, President or Librarian of the Faculty, authority on life insurance, student



From a photograph by]

[T. & R. Annan & Sons, Glasgow.

JAMES FINLAYSON, LL.D., M.D., F.F.P.S.G.

of old medical literature, author, counsellor, or friend, James Finlayson will continue a living memory to many, for a long time to come. We feel that we cannot do better than reproduce the account of his life and work which appeared in the *Glasgow Herald* on the morning after his death, together with the appreciation by Sir Hector C. Cameron; and for permission to do so we are indebted to the courtesy of the Editor of the *Herald*. Sir William T. Gairdner has favoured us by adding some notes of his own.

We regret to announce the death of Dr. James Finlayson, which took place with startling suddenness on Tuesday, 9th October, at his residence, 2 Woodside Place, Glasgow. Dr. Finlayson was engaged in his professional duties on the previous day, and seemed to be then in his usual health. By his death the medical profession in Scotland loses one of its most distinguished members.

James Finlayson was born at Glasgow on 22nd November, 1840. He was the second son of Thomas Finlayson, sometime of the firm of M'Lean & Finlayson, manufacturers, Glasgow. The maiden name of his mother was Georgina Campbell, and she was the daughter of an army surgeon. His elder brother, Thomas Campbell Finlayson, a distinguished minister of the Congregational Church, first at Downing Place, Cambridge, and thereafter at Rusholme, Manchester, received the honorary degree of D.D. from our University in 1891, and died, at Dr. James's residence in Glasgow, on 7th February, 1893, two days after completing the fifty-seventh year of his age. Originally intended for the ministry of the United Presbyterian Church, Thomas became a student in the Theological Hall of that body, but was assailed by "honest doubt," and sought the freer atmosphere of Congregationalism. A sister was married to the Rev. Andrew Gibb Fleming, minister of Thread Street United Free Church, Paisley, who died on 12th May, 1905.

James received his early education at the High School of Glasgow, and entered the old College, as an arts student, in session 1856-57, aged 16. It is interesting to note that in this class the second prizeman was William Stewart, Dalbeattie, now Professor of Biblical Criticism and Clerk of Senate at Gilmorehill; another was Richard Vary Campbell, Glasgow, afterwards the well-known advocate and sheriff; and still another was David White Findlay, Glasgow, now Professor of Practice of Medicine in the University of Aberdeen. From 1857 to 1862 Finlayson was engaged in business, and in

1862-63 he took some medical classes in Anderson's College. His medical curriculum at the University extended from 1863-64 to 1866-67, the course being then, as it was for three decades afterwards, a four years' one. His academic career was singularly brilliant, for he carried off certificates of merit (eight firsts and one second) in every class except that of zoology. Among his class-fellows who also obtained first class certificates were Joseph Coats, afterwards Professor of Pathology; Hector C. Cameron (now Sir Hector), Professor of Clinical Surgery; and Thomas Barr, now University Lecturer on Diseases of the Ear. Of the ten University professors under whom young Finlayson studied, only two are now alive, namely, Lord Lister and Sir W. T. Gairdner. In all the professional examinations, Finlayson obtained such marks as enabled him to graduate M.B. on 16th May, 1867, with the much-coveted and greatly-prized mark of "honours." Dr. Joseph Coats and Dr. Gavin P. Tennant were "capped" on the same day. The subject of his thesis—which at that period was required at the M.B. instead of the M.D. stage—was "The Value of Quantitative Methods of Investigation in Medicine and the Allied Sciences." Two years after graduating M.B.—namely, on 17th May, 1869, the earliest date permitted by the regulations—he received the higher degree of M.D. Thirty years later (18th April, 1899) the honorary degree of LL.D. was conferred upon him by his *Alma Mater*. In 1867 he became a Licentiate of the Royal College of Surgeons of Edinburgh, and in 1871 was admitted a Fellow of the Faculty of Physicians and Surgeons of Glasgow, in which latter body he held, for over a quarter of a century, the office of Honorary Librarian, reaching in 1899 the honourable position of Visitor (which corresponds to that of vice-president in similar institutions elsewhere), and, latterly, the still more honourable post of President, which he held 1900-1903. His unwearied interest in the great medical library of the Faculty has made it one of the most comprehensive and valuable collections in this country.

From the period of his entering the medical profession, Dr. Finlayson was engaged almost continuously in hospital work, and from 1871 in clinical teaching. The scene of his earliest labours was the Clinical Hospital, Manchester; from 1871 to 1874 he acted as assistant to Sir William Gairdner in his clinique at the Glasgow Royal Infirmary; and from 1875 he was a physician to the Glasgow Western Infirmary, where, as a recognised lecturer on the subject, he taught clinical medicine down to the date of his death. He held the

office of Physician to the Glasgow Royal Hospital for Sick Children from its opening in 1883 till his resignation in 1898, and had there also a certain amount of clinical teaching. On retiring he was elected Consulting Physician.

Dr. Finlayson was a prolific writer in three great departments of professional lore—(1) Clinical Medicine; (2) Physiology and Anatomy; (3) Medical History and Biography. His *magnum opus* was the "Clinical Manual for the Study of Medical Cases," which has passed through three editions (1878, 1886, 1891) in this country, and two, under the title of "Clinical Diagnosis," in the United States (1878 and 1886). It was at once hailed as an inestimable boon to hospital students, and has been extensively used in medical schools throughout the English-speaking world. He wrote the chapter on "Diagnosis" in Keating's "Cyclopædia of the Diseases of Children," published in 1889 by J. B. Lippincott Company, Philadelphia. His "Account of the Life and Works of Maister Peter Lowe, the Founder of the Faculty of Physicians and Surgeons, Glasgow," and his "Account of the Life and Works of Dr. Robert Watt, author of the 'Bibliotheca Britannica,'" are well known and full of interest to all students of medical history. His contributions to the Scottish, English, American, Indian, and Continental medical press are about one hundred and fifty in number, of which no fewer than sixty appeared in the "Glasgow Medical Journal" alone, twenty or more in the "British Medical Journal," and ten at least in the "Archives of Pediatrics," New York. The list of other publications favoured by his pen is almost bewildering—"The Lancet," "Practitioner," "Brain," "Medical Magazine," "Obstetrical Journal of Great Britain and Ireland," "British and Foreign Medico-Chirurgical Review," "Archives of Otology," "The Collective Investigation Record," Manchester "Medical Chronicle," Liverpool "Medico-Chirurgical Journal," "Edinburgh Medical Journal," "Glasgow Hospital Reports," "Proceedings of Glasgow Philosophical Society," "Glasgow University Magazine," "Medical Institutions of Glasgow," "International Journal of Medical Sciences," Philadelphia; "International Clinics," Philadelphia; "New York Medical Journal," "The Indian Lancet," "Janus," Amsterdam; "Journal für Kinderkrankheiten," and so on. The contributions in this formidable array of publications range over many and varied departments of medicine, and contain a record of numerous original investigations which have shed much light on the diagnosis, pathology, and treatment of internal disease. His publications in medical archæology disclose the most

painstaking researches in Greek, and Roman, and ancient Egyptian medicine.

Dr. Finlayson was regarded by his professional brethren as a man of the very highest standing, and an erudite and skilful physician, who was not merely accurate in detail, but had likewise a strong and clear insight into principle. His success, both as practitioner and teacher, was very marked. A quiet, soothing, and hope-inspiring manner, coupled with an obvious suggestion of inexhaustible inward resource, did much to encourage and strengthen his patients; while the same gentle handling and evident grasp of every necessary detail, theoretical as well as practical, raised him, in the eyes of successive generations of students, to a pinnacle of the highest respect and veneration. In many a doctor's home—from Highland glen to London square, from African veldt to Australian bush—the news of his death will be sadly received by hundreds of Glasgow graduates who, in many years gone by, sat at the feet of James Finlayson.

Dr. Finlayson, who was never married, is survived by a brother and a sister.

APPRECIATION BY SIR HECTOR C. CAMERON.

A central figure in the medical profession, as well as in the medical school of Glasgow, has been removed by the sudden death of Dr. James Finlayson. The very unexpectedness of the event, with the difficulty which follows of at once fully realising our loss, makes it a hard task for a close and intimate friend to write hurriedly any just estimate of his character and life. No physician during the last thirty years has been better known or more trusted in consultation than he, both by the public and by the medical profession in Glasgow and the West of Scotland. Nor has the confidence reposed in him been confined to these limits. When attending the recent meeting of the British Medical Association in Toronto, I was seated one evening in a private house next to one of the most distinguished and well-known consulting physicians of London. He made some kind inquiries in regard to Dr. Finlayson, and he afterwards said—"He is an accurate, painstaking and well-informed physician. Indeed, if I were myself ill of any serious and obscure ailment, I know no one whose opinion I would more highly value than his. I have a very great respect for him indeed." There are hundreds of practitioners in Glasgow

and its neighbourhood who would have been found ready to say the same thing.

Of his ability and popularity as a consultant, therefore, it is hardly necessary to say more. But he has performed great services to the profession in many other directions. Having become a Fellow of the Faculty of Physicians and Surgeons in 1871, he was appointed Honorary Librarian six years afterwards, and for five and twenty years he worked ungrudgingly, and at the cost of much time and trouble, in the interests of the Library. To his unwearied efforts for its improvement and enlargement is due the fact that the Fellows of that Corporation now possess a medical library of very great completeness and value. The work thus accomplished was with him truly a labour of love, for he was ever a lover of books. Especially was he a student of the rare and older works on medicine. Indeed, so far as medical matters are concerned, he was our only local archæologist. The results of his studies in ancient medical bibliography he communicated to the medical profession of Glasgow on one or two occasions, when, on his invitation, they met in the Faculty Hall, and he gave "Bibliographical Demonstrations" of the writings of Hippocrates, Galen, and others; and many must remember vividly the great interest those demonstrations aroused, and the valuable knowledge of bibliography which they communicated. "These Bibliographical Demonstrations," he wrote in the preface to those demonstrations which he afterwards published on the works of Galen, "given in a library by exhibiting the various editions of an author and by reading selected extracts, are attempts to afford to those present some slight personal knowledge of the writer's works. However fragmentary, these may make a more vivid impression than elaborate explanations and disquisitions about an author one has never read even in part." This desire for knowledge that is accurate and obtained at first hand was one of the strongest and most striking characteristics of our friend. It would not be too much to say that it was a great cause of his success in life, and probably explained the confidence which others so largely felt in his opinions.

He further placed the Faculty, and, indeed, the medical profession all over the world, under a deep debt by writing a scholarly and very complete "Account of the Life and Works of Maister Peter Lowe, the Founder of the Faculty of Physicians and Surgeons of Glasgow." A laborious, valuable, and highly appreciated literary work of this kind,

independent of his many suggestive and valuable contributions to clinical medicine, was ample justification for his University conferring upon him some years ago the honorary degree of LL.D. He was President for three years of the Faculty of Physicians and Surgeons, for whom he had thus laboured, and in whose honour and prosperity he was always interested. No one ever discharged with greater dignity and success the duties of that office. Many generations of students have attended his clinique in the Western Infirmary, where he has acted as one of the physicians and clinical lecturers since the infirmary was opened in 1874. No teacher there has ever had more loyal and enthusiastic pupils. His "Clinical Manual for the Study of Medical Cases" has passed through several editions, and is well known in all the medical schools of the country. He was equally successful and as greatly interested in his work as a physician of the Glasgow Royal Hospital for Sick Children during many years.

He began his professional career as a house physician in the great Children's Hospital of Manchester, and throughout his life the medical diseases of childhood claimed his close interest and attention. This fact was recognised when he was asked to preside over the section which dealt with the diseases of children at the annual meeting of the British Medical Association held some years ago at Carlisle. All medical questions connected with life insurance formed another department of work which claimed (especially in his later years) much of his time. He was for some time the medical adviser to the Scottish Amicable Life Insurance Company, and his experiences there and elsewhere led him to arrive at, and to communicate by publication to many who were specially interested, some generalisations of no little value connected with the subject of life insurance.

These very short and hurried notes may serve to indicate how varied and valuable has been the work performed by Dr. Finlayson, but a suitable appreciation of him can hardly be written in the grief and dismay which follow upon his awfully sudden and unexpected death. He was a man of unusually attractive character—upright, sincere, generous, and affectionate. He will long continue to be greatly missed, not only by those patients who relied upon his professional advice, but also by many of his brethren who were wont to resort to him for guidance when in any sort of difficulty, whether connected with their profession or with the conduct of their ordinary affairs. No fact can better indicate the

position he held amongst us or the sense of grief and loss which his removal must widely create.

NOTE BY SIR WILLIAM T. GAIRDNER.

Sir William Gairdner, having read the above with entire approbation and warm appreciation, desires to add, as the result of many years' intimacy, that Dr. Finlayson had in a very rare degree the power of looking at a subject all round without importing any bias derived from his own personality, but at the same time without hesitating between conclusions when his own mind was firmly convinced. His own carefully stored and large experience enabled him to produce facts in accordance with various views, and thus it occurred that his judgments were almost always ultimate, and have been maintained by all further investigation to a degree that is unusual, and ought to be recalled now in this obituary notice as a part of the character of the man. Sir William Gairdner was closely associated for many years with Dr. Finlayson, and no one can mourn his loss with more appreciation and sympathy.

In Memoriam.

JAMES FINLAYSON, M.D., LL.D.,

Author of "Account of the Life and Works of Maister Peter Lowe, the Founder of the Faculty of Physicians and Surgeons of Glasgow," "Account of the Life and Works of Dr. Robert Watt, Author of the 'Bibliotheca Britannica,'" &c., &c.

ST. MUNGO mourns a gifted son to-day—
 Physician, teacher, writer, scholar, friend,
 Whose long and varied service did but end
 Some hours before Death sudden called to say,
 That he his noble tasks down now must lay,
 While o'er him, in sweet angel guise, did bend
 Grave Medicine, and whispered low, its trend,
 "Well done!" and so in peace he passed away.
 In those pure teachings he has left behind
 Of men and books, and scorn of all 'twas mean,
 Must we for our deep sore the true salve find;
 In's gentle face, with humour twinkling keen,
 Which to the bedside precious healing brought
 As oft as did his shrewd ripe skill and thought.

GEORGE UMBER.

ROBERT SLOSS STEWART, M.D., D.P.H.CAMB.

WE regret to record the death, from heart disease, of Dr. Robert S. Stewart, Medical Superintendent of the Glamorgan County Asylum, which occurred on 28th September, at the early age of 44 years.

Dr. Stewart, a native of Dalmellington, was a distinguished student of the University of Glasgow, where in 1883 he took the degrees of M.B., C.M., "with high commendation," and three years later that of M.D., also "with high commendation." Having completed his curriculum he acted as Resident Assistant in the Western Infirmary in the wards of Sir William T. Gairdner, the late Prof. Leishman, and Dr. Alexander Patterson. Thereafter, turning his attention to the study of psychological medicine, he obtained the appointment of Assistant Medical Officer at the Glamorgan County Asylum, at which institution he spent the remainder of his life, devoting himself entirely to the study and care of the insane. So thoroughly were his services and excellent qualifications appreciated by the Committee that they immediately appointed him Medical Superintendent on the retirement of Dr. Pringle in 1904. By his untimely death the asylum has lost an able superintendent, and the medical profession a prominent member.

Of a retiring, unostentatious, kind, and genial disposition, Dr. Stewart was universally respected and esteemed, and his loss is keenly felt by all who knew him.

For many years Dr. Stewart was connected with the *Glasgow Medical Journal* as a writer upon the current literature of English, American, and Continental journals devoted to the study of nervous and mental affections, and he wrote several reviews of works dealing with lunacy for the *Journal of Mental Science*. In addition to these, the following papers on psychological subjects are also from his pen:—"Observations on the Spinal Cord in the Insane," "Ataxo-Spasmodic Tabes (Ataxic Paraplegia) in Case of Primary Dementia," "The Spastic and Tabetic Types of General Paralysis," "The Increase of General Paralysis in England and Wales," "The Decrease of General Paralysis of the Insane in England and Wales," and "The Relationship of Wages, Lunacy, and Crime in South Wales."

REV. HUNTER FINLAY, M.D.GLASG., L.F.P.S.G., L.M., J.P.

DR. FINLAY, who was a native of Glasgow, was the eldest son of Mr. Hunter Finlay, calico printer. He studied Latin and

Greek at the University of this city in 1855-56, and passed through his medical curriculum in the four following sessions. He took the first prize in Botany, under Prof. Walker-Arnott, in the summer of 1857. He obtained the degree of M.D. in 1860, and the qualifications of L.F.P.S.G. and L.M. in the same year. According to the "Roll of Graduates," he was successively at Bothwell, Glasgow, London, Tilney-St.-Lawrence (Norfolk), London (where he was curate of St. Mary's, Spital Square), and different places in Queensland. He was a Justice of the Peace, and a member of the British Medical Association, and he contributed articles on medical subjects to the *Australasian Medical Gazette* and *British Medical Journal*. In recent years he lived at Coolgardie, Western Australia, where he died suddenly on 5th September.

JOHN KER RAMSEY, M.D. GLASG.

It is with regret that we have to record the death of Dr. John Ker Ramsey, of Prahran, Melbourne, which took place there, from pneumonia, on 23rd August.

Dr. Ramsey was born in Beith, Ayrshire, in 1840. He attended Mr. Wylie's school there, and, in 1854, he entered business with the intent of studying law. In 1858, however, he entered Glasgow University as a student of medicine, attending the classes, among others, of Lord Lister and Sir William T. Gairdner. In 1863 he obtained the degree of M.D., after which he spent seven years in general practice at Sanquhar and Galston, leaving for Australia in 1870. For the first fifteen months of his residence there he carried on medical work in Koroit, Western District (Victoria). He was then appointed one of the first resident medical officers to the Alfred Hospital. In the following year he took up private practice in Grosvenor Street, South Yarra, after purchasing Dr. Stokes' practice, and he remained there till 1880. In the latter year he purchased the property in Malvern Road where he practised till his death. He was closely associated with the building of the Alfred Hospital, and the Deaf and Dumb and Blind Institutions.

Dr. Ramsey was a brother of Mr. Robert Ramsey, formerly Deacon-Convenor in this city. He leaves a widow, two daughters, and one son, Robert, who graduated M.B., C.M., at Glasgow University in 1892.

CURRENT TOPICS.

ROYAL INFIRMARY APPOINTMENT.—Dr. A. W. Harrington has been appointed Extra Dispensary Physician in succession to Dr. Campbell S. Marshall promoted.

THE LATE MR. HUGH BROWN.—Though well known to the Glasgow public as a prominent citizen and as a director of important commercial undertakings, Mr. Brown was more particularly associated with the Royal Infirmary. He served on the Board of Managers for more than thirty years, and was for a long time at the head of that Board. He was also deeply interested in St. Mungo's College, and did splendid service in advancing its interests. Members of the infirmary staff will cherish the memory of Mr. Brown as that of a good and highly respected personal friend, as well as a devoted, unselfish, and wise promoter of the usefulness and reputation of the institution.

SOUTHERN MEDICAL SOCIETY.—The opening meeting of the session was held on 4th October, when the President, Dr. T. K. Monro, delivered his address, which was entitled "Some Notes on Family Diseases." On the motion of Dr. James Hamilton, a vote of thanks was awarded to the President. The meeting afterwards considered the arrangements for the annual dinner.

SOUTHERN MEDICAL SOCIETY: ANNUAL DINNER.—The Annual Dinner was held in the Grosvenor Restaurant on 18th October, and was well attended by members and guests. Dr. T. K. Monro, President of the Society, occupied the chair, and was supported by Dr. Thomas Forrest and Mr. J. Grant Andrew as croupiers. On the right of the chairman sat Dr. James Barras, the Honorary President and oldest member of the Society, whose membership dates back for forty years. Four out of the five oldest members were present, and among the non-medical guests was Mr. Tom M'Ewan, R.S.W., who gratified the company with both song and speech.

THE following are the office-bearers for session 1906-1907 of the various medical societies of Glasgow :—

MEDICO-CHIRURGICAL SOCIETY.

<i>President,</i>	.	.	.	.	.	DR. JOHN LINDSAY STEVEN.
<i>Vice-Presidents,</i>	.	.	.	.	.	{ DR. ROBT. M'KINLAY. DR. J. H. PRINGLE.

Council.

<i>Section of Medicine.</i>						<i>Section of Pathology.</i>					
DR. J. M. COWAN.						DR. JOSHUA FERGUSON.					
DR. NORMAN M'NAIR.						DR. LESLIE BUCHANAN.					
DR. WM. GRANT.						DR. HUGH M'LAREN.					
DR. JOHN BROWNLEE.						DR. R. BRUCE YOUNG.					
<i>Section of Surgery.</i>						<i>Section of Obstetrics.</i>					
DR. G. BURNSIDE BUCHANAN.						DR. DAVID WATSON.					
DR. JAMES LAURIE.						DR. ROBERT JARDINE.					
DR. J. GALBRAITH CONNAL.						DR. SAMUEL J. CAMERON.					
DR. ALEX. M'LENNAN.						DR. JOHN LINDSAY.					
<i>Treasurer,</i>	.	.	.	.	.	DR. ALFRED A. YOUNG.					
<i>Editorial Secretary,</i>	.	.	.	.	.	DR. JAMES SCOTT.					
<i>General Secretary,</i>	.	.	.	.	.	DR. ARCHIBALD YOUNG.					

PATHOLOGICAL AND CLINICAL SOCIETY.

<i>President,</i>	DR. JOHN LINDSAY STEVEN.
<i>Vice-President,</i>	DR. J. C. RENTON.
<i>Hon. Treasurer,</i>	DR. W. B. INGLIS POLLOCK.
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NEW PREPARATIONS, &c.

"THE BLOODLESS PHLEBOTOMIST" (October, 1906, vol. ii, No. 4).—This periodical is published by the Denver Chemical Manufacturing Co., New York, for the purpose of pushing the claims of antiphlogistine. It contains several original articles and numerous extracts.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1905-1906.

MEETING XII.—16TH MARCH, 1906.

The President, DR. JOHN LINDSAY STEVEN, in the Chair.

I.—THE INFLUENCE OF THE ACUTE INFECTIONS UPON THE ARTERIES.

BY DR. JOHN M. COWAN.

Dr. Cowan's paper will be found as an original article in our issue for August, 1906, at p. 88.

II.—ON CERTAIN CLINICAL ASPECTS OF ARTERIAL DISEASE.

BY DR. JOHN LINDSAY STEVEN.

Dr. Lindsay Steven's paper will be found as an original article in our issue for August, 1906, at p. 81.

Dr. Russell could not altogether agree with *Dr. Cowan's* propositions concerning focal lesions in the vessels, because such changes were common apart altogether from the incidence of infectious diseases. He regarded atheroma as probably due to a local infection, and was to be distinguished from arterio-sclerosis, which had proved a most unfortunate term. Atheroma was a degenerative process. He said that, clinically, thickening of the radials was often found, sufficiently pronounced to give rise to the diagnosis of "plates," where no pathological change could be found, the condition being due to contraction of the muscular coat. Certain infectious diseases appeared to select the vessels of a particular part. Thus, diphtheria tended to attack the splenic arteries, the toxin in the organ causing a hyaline degeneration. Such changes were to be distinguished from focal lesions which might be due to infection by an organism. In scarlet fever, also, the changes were chiefly confined to the kidney. With regard to high tension pulses, the term was frequently applied to radial arteries with thick walls, but ought not to be so applied. Causes leading to a tightening-up of the arteries were the beginnings of arterio-sclerosis, and indicated a poison circulating in the blood. A hypertrophy of the muscular coat was caused by the excessive contraction, and hyperplasia of the interna also took place. It was emphatically not a degeneration. The great cause of arterio-sclerosis was the alimentary canal, and was almost universal, as the average man took about three times what was a sufficient quantity of proteid. Constipation was another great cause. It meant a retention of proteid in the intestine, putrefaction took place, and a tightening-up of the arteries followed.

Dr. Samuel Sloan said he had observed a great rise of blood pressure in the radial artery during the application of the faradic current over the splanchnic area. This, he supposed, was caused by the current causing contraction of the vessels of this area.

Dr. Russell said that during digestion the vessels of the splanchnic area were dilated, and the vessels generally thus depleted. So he thought the reverse process was quite likely to occur.

Dr. W. K. Hunter said he thought *Dr. Cowan* had not got at the very earliest lesion in arterio-sclerosis. He thought the first changes were chemical rather than cellular. The toxins appeared to lessen the resistance of the vessel wall.

Dr. J. W. Findlay said that *Dr. Cowan* had not made any reference to hyaline degeneration. *Dr. Ford Robertson* had

demonstrated that hyaline degeneration took place first, and fibrotic change secondarily. He (Dr. Findlay) had also found this in examining the choroid plexuses in the insane. The poison appeared to come actually from the circulating blood, because he had been able to demonstrate hyaline degeneration in minute blood-vessels with no vasa vasorum.

Dr. Cowan, in reply to *Dr. Findlay*, said he thought that hyaline changes were generally secondary to proliferative changes. He could give no reply to *Dr. Hunter's* query regarding the action of toxins. *Dr. Lindsay Steven* had said that a high blood pressure was always associated with kidney disease, but he (*Dr. Cowan*) maintained that a temporary rise of blood pressure, from indiscretion in diet, if frequently repeated, did in time give rise to a permanently high blood pressure. On each successive occasion it became more difficult by treatment to bring the circulation back to normal, and in time the high blood pressure became permanent.

MEETING XIII.—6TH APRIL, 1906.

The President, DR. JOHN LINDSAY STEVEN, in the Chair.

I.—TWO CASES OF SYRINGOMYELIA.

By *DR. T. K. MONRO.*

Dr. Monroe's paper will be found as an original article in our issue for October, 1906, at p. 241.

II.—OPERATION OF EPIPLOPEXY FOR THE RELIEF OF ASCITES.

By *DR. T. K. MONRO AND DR. A. N. M'GREGOR.*

The patient was a dentist, aged 40, whose symptoms were hæmatemesis, pain and tenderness in the right hypochondrium, and latterly ascites. The former symptoms were only of six months' duration; there was no alcoholic, syphilitic, or malarial history. On the abdomen being opened in the middle line, above the umbilicus, a quantity of ascitic fluid was evacuated, and there were found a cirrhosis of the liver and an adhesion of the pyloric end of the stomach to the under surface of the

liver. The stomach was healthy except for some dilatation of the veins, and no tumour was anywhere found. The omentum was then spread out, and attached by three rows of sutures to the peritoneal surface of the anterior wall on each side of the incision. During the closure of the abdominal wound, the omentum was picked up by each of the sutures uniting the peritoneal edges. The rest of the abdominal wound was closed in two layers. The wound healed aseptically, and the patient went home in a fortnight. When he reported himself, eight months after the operation, an enlarged superficial epigastric vein was visible, extending from the umbilical end of the cicatrix to the left groin. There were no other venous dilations visible, and no ascites. The spleen was sufficiently enlarged to be distinctly felt on inspiration, and there was slight diminution in size of the liver. Since the operation his only symptom had been a slight hæmorrhage, evidenced by melæna. The patient declared himself in better health than he had been for fifteen years.

[This paper appeared *in extenso* in the *Lancet* for 5th May, 1906.]

Dr. Strain said he had operated in two such cases, and though the operation may not prolong life, it increased the patient's comfort and rendered frequent tapping unnecessary. He had been unable to watch the first case for more than two months, when the ascites was moderate. In the second case, for a few days after the operation, there had been a re-accumulation of fluid, but this soon disappeared.

III.—THE INFLUENCE OF HIGH-FREQUENCY CURRENTS ON THE SURFACE TEMPERATURE OF THE BODY.

By DR. W. F. SOMERVILLE.

Dr. Somerville said that, apart from any form of treatment, he found great variations in surface temperature, according to the locality and the individual, &c. High-frequency currents produced a rise of temperature on the surface of the body, varying with the dosage, the locality chosen, and the method of application. Their action on the vasomotor system caused increased peripheral circulation, and in some cases also dilatation of deeper vessels. The rise of temperature varied from 1.4° to 17.4° F.

[This paper appeared *in extenso* in the *Medical Electrology and Radiology* for May, 1906.]

GLASGOW EASTERN MEDICAL SOCIETY.

SESSION 1905-1906.

MEETING XIV.—18TH APRIL, 1906.

The Vice-President, DR. T. C. BARRAS, in the Chair.

1. DR. JOHN PATRICK showed two cases of open-bite malocclusion of the jaws. The more marked case was a lad, 19 years of age. He had always been weakly, and since the age of 9 years had been unable to bring his incisors together, and had to be fed with soft food. He was a mouth breather and had a high palatal arch. His brother, aged 25 years, showed a similar condition in a minor degree.

Dr. Patrick showed plaster casts, made by a dentist, of the dental arches of the first patient; and referred to an article in the *Dental Cosmos*, by a Chicago dentist, in which the causes of the condition were assigned to (1) excessive action of the masseter muscle on the lower jaw, and (2) crowding of the teeth in the upper jaw.

2. DR. JOHN P. GRANGER showed—

(a) Two cases of supra-condylar fracture of the humerus, in which the treatment consisted in putting the arm in a rectangular splint for one week, until all swelling had subsided, and then redressing it in a position of acute flexion at the elbow. The results in both cases, in regard to union, non-deformity, and movement at elbow, were very satisfactory. Special care has to be taken to avoid lateral displacement. Skiagrams were shown of both cases, and the Sydenham Society's plates of similar cases.

(b) Case of fracture of the left malar bone, in which (a) patient was not able to close the mouth strongly, and (b), there was loss of sensation from pressure on the infra-orbital nerve.

Dr. Patrick thought the case of malar bone was one of depression rather than fracture, and similar to one he had shown to the Society three years ago.

Dr. Battersby agreed with *Dr. Patrick's* view, and thought the anæsthesia more probably due to fracture of the superior maxillary bone. He also thought the cases of supra-condylar fracture were more probably separation of the epiphyses.

Dr. Granger, in reply, held that the malar bone was fractured as well as depressed. In regard to the supra-condylar fractures, he could not agree that they were simply separation of the epiphyses for the following reasons:—(1) That the skiagrams showed that the line of fracture was irregular and not straight, as it would be in a separation of epiphyses, and (2) that the fragments in both cases included the internal condyle, whereas the internal is not joined to the epiphyses before the thirteenth year, and the children shown were 4 and 5 years old respectively.

3. *DR. JOHN MATHIE* read notes of a case of icterus neonatorum, in which the *post-mortem* examination revealed congenital defect of the bile-ducts. The child, a male, when born seemed strong and healthy, but distinct jaundice was noticed on day of birth. Physical examination showed organs of chest and abdomen to be normal. Child did not thrive; yellow colour of skin gradually gave place to a dirty earthy appearance; the urine also gradually losing its saffron-like colour and becoming ultimately limpid, like drinking water. The motions remained pipeclay-like, except on one or two occasions when there was green material in them. Death took place thirteen weeks after birth, emaciation during the latter part of life being extreme.

The family history is interesting, in that other two members of the family (both males) developed icterus at birth; the one dying in about six weeks' time, having convulsions at the end; the other surviving, and now aged 8 years, but imbecile to a moderate degree. There is no evidence of syphilis in the family.

4. *DR. JOHN ANDERSON* read full notes of the *post-mortem* examination of *Dr. Mathie's* case, which he had made. There was a true congenital obliteration of the bile-ducts, probably due to syphilitic hepatitis. There was also stenosis of the pulmonary artery.

5. *DR. WILLIAM BUCHANAN* read notes of a case of precipitate labour in a primipara to which he was called after birth of child, when he removed placenta in usual fashion. He was recalled four hours later, and found a small tumour in right labium, which went on increasing for some hours. Next day it was no larger, but patient was unable to micturate. The tumour gradually subsided without further symptoms. There were no varicose veins on labium.

REVIEWS.

A Handbook of Climatic Treatment, including Balneology.
By WILLIAM R. HUGGARD, M.A., M.D., F.R.C.P. Lond.
London: Macmillan & Co. 1906.

THE object of the author in writing this work was, as he himself puts it, "to place the therapeutics of climate on a secure foundation." In working out his thesis, he has so planned it that the reader is conducted through a well-ordered and concisely-written scheme of meteorology, which is discussed mainly from the physical side, then through what the author calls the physiology of climate, thus leading up to the subjects of climates and health resorts, baths and mineral waters, and the therapeutics of the same.

Probably the outstanding feature of the book is an attempt to construct a new classification of climates based on the physiology of climate, regarding which some notice must be made, seeing that it is of the classifications of climates that so much divergence of view is to be found in books and treatises upon this subject.

As in classifications of other subjects, so also here the particular one which is adopted by any author depends entirely upon the *fundamentum divisionis*. Thus we have classifications which are based on the relations to the equator, or upon proximity to the sea and to altitude, both of which are doubtless of much interest to the geographer and meteorologist, but which, not infrequently, are of little value to the physician. Some other classifications depend in certain measure on the general effect on the human organism of different factors which collectively constitute climate; but, as the author points out, all of these treat but slightly, or neglect, the important element for therapeutic benefit, viz., the relation of climate to the individual.

In his classification the author starts from the following principle of division, viz., "the demand made by the climate for the production of heat," which, he believes, corresponds in the human subject to the demand for tissue change; and he goes on to remark, "other things being equal, that climate is most tonic which demands the greatest amount of tissue change that a given organism can permanently yield." He

affirms that, up till now, classifications which have been tending in this direction have failed, because they gave too much prominence to some one particular factor of the many which together go to make up the climate.

The principle of division of the author being as stated, he places at the top of his list those climates which make least demand for heat production, and at the bottom those which make the greatest demand, because he is of opinion that temperature is the only meteorological factor which retains its place as a prominent element of classification for all climates, its influence on the human body for heat requirements being modified by mean relative humidity and the presence or absence of winds.

On this basis, therefore, he divides climates into different groups as follows:—Climates (1) where the heat demand, or demand for tissue change, is excessively small; (2) where it is small; (3) where it is medium; (4) where it is large; and (5) where it is excessive. These are grouped relative to temperature as follows:—Group 1, called hot climates, have a temperature of over 71.6° F.; group 2, called warm climates, a temperature ranging from 60.8° F. to 71.6° F.; group 3, called temperate climates, a range from 48.2° F. to 60.8° F.; group 4, called cool climates, a range from 33.8° F. to 48.2° F.; and group 5, called cold climates, a temperature under 33.8° F.

Each of these five groups, except the last, is subdivided into two sub-groups by the mean relative humidity, which are called *dry* and *not-dry* climates; thus, in group 1, the temperature being as stated above, a dry climate is one which has a humidity under 60 per cent, and a not-dry climate one where the humidity is above that percentage figure. For the other three groups the humidities for the sub-groups in each are respectively as follows:—For group 2, under or over 66 per cent; for group 3, under or over 75 per cent; and for group 4, under or over 70 per cent. The last has no sub-groups, the mean relative humidity for it being 80 per cent or over. Cairo is instanced as an example of different climates represented at different seasons of the year. It has a dry, hot climate from May till August; a moist climate from September till October; a dry, warm climate in March and November; and a dry, temperate climate in December, January, and February.

The Riviera generally from November till April has a dry, temperate climate, although in December and January Cannes, Nice, and San Remo are cool rather than temperate.

In South Africa, the climate of Cape Town may be classified as temperate from May till October, and as warm from November till March; whereas in the higher lands farther

from the sea the temperate climate begins one month earlier and ceases one month sooner, and the warm climate begins earlier by one month but lasts for the same period as at the lower altitudes.

Under the group of not-dry temperate climates the author places the United Kingdom during spring and summer weather, although, as he points out truly, in some places during the months of July and August their condition would cause them to fall within the warm climates.

It is not possible, compatible with due brevity, to elaborate further the author's thesis; it is probably sufficient to say that the net result of his classification is to emphasise the need on the part of physicians who send forth patients in search of health to have an intimate knowledge of the climatic conditions at different seasons of the year of reputed health resorts. There is, in our view, need for such emphasis. It would not overshoot the mark to say that such knowledge is possessed only by a few. Many mistakes are being made in this regard, especially in the case of consumptives, for want of accurate knowledge of the climatic conditions of the places to which they are sent.

It cannot be too strongly pointed out that climate is not, with the exception of a few isolated spots on the face of the earth, a stereotyped entity, but is subject to fluctuations and variations, because it has relation to time and season as well as to place. Indeed, the physician will best guide his patient who has himself intimate knowledge respecting these seasonal alterations, because, after all has been said, climate is the resultant not merely or solely of temperature and humidity combined, but also of barometric pressure, winds and their prevalence, altitude, exposure, sunshine, and other factors.

A large amount of information will be found concisely, but adequately, put in the chapters on the above subject.

In that which deals with the influence of atmospheric pressure, a subject to a fuller understanding of which on human ailments contributions are being added from time to time, the author devotes some attention to the influence of high altitude, or diminished pressure, on the incidence of pulmonary diseases, and especially of phthisis. It has for long been a cherished belief that immunity from phthisis prevailed at high altitudes, that is, at altitudes relatively high to latitude; but observations of populations living under such circumstances have revealed the existence of that disease in places as high as 8,000 or 9,000 feet above sea-level. In these instances, however, it was found to prevail only among

those who were poorly housed and fed, although even in these the disease pursued a most chronic course, different in some of its clinical manifestations from those exhibited at lower levels. Swiss observations, for example, go to show that as altitude increases up to about 6,000 feet, cases of phthisis are found in decreasing ratios. But of other pulmonary diseases generally, it seems to be well established that at high altitudes their incidence is less than at lower levels, believed to be due to the greater functional activity of the respiratory apparatus induced by the more rarefied atmosphere.

Under the same heading the author discusses the theories as to the cause of mountain sickness of Kronecker, which is that of diminished air-pressure; of Paul Bert, which is that of lack of oxygen in the air inspired; and that of Mosso, which is that of insufficiency of carbon dioxide in the blood; and while not committing himself to any one of these, he affirms there is no doubt that inhalations of oxygen seem to relieve the symptoms of those attacked.

Perhaps the most valuable parts of the book to the practitioner are those which treat of health resorts, baths, and mineral waters. These may be consulted with much profit, because of the detailed practical information which is given. The same is true regarding the baths, spas, and composition of mineral waters of different countries in their relation to the treatment and cure of diseases. Moreover, special attention is paid to the climatic and balneological treatment of different organic diseases in the closing chapters.

After careful perusal of the book we are bound to say that it is an excellent work, having been well planned and well executed. It will prove most valuable as a work of reference, and we cordially recommend it to our readers.

The Extra Pharmacopœia of Martindale and Westcott.
Revised by W. H. MARTINDALE, Ph.D., F.C.S., and W. WYNN
WESTCOTT, M.B.Lond., D.P.H. Twelfth Edition. London:
H. K. Lewis. 1906.

NEARLY 240 pages have been added to the twelfth edition of this well-known work. The compilers deserve great credit for the manner in which they have endeavoured to produce a book which will be of use in the dispensary, the consulting room, the study, and the laboratory. The scope of the work is indeed wide, for besides a very complete official and non-official

pharmacopœia, there are interesting chapters dealing with radiology, bacteriology, antitoxins, and organo-therapeutics; "analytical memoranda," treating of the examination of urine, blood, stomach contents, and of the analysis of water and milk; and lists of health resorts, and of mineral springs, with analyses of the waters and their therapeutic uses.

The diversity of the matter dealt with, and the attempt which has been made to epitomise with clearness the latest information upon the various subjects treated of, make this book at once instructive, interesting, and useful, and one to which the therapist will often refer with satisfaction.

Principia Therapeutica. By HARRINGTON SAINSBURY, M.D.
London: Methuen & Co.

MANY years have elapsed since the writer of this notice read the works on the principles of medicine by Milligan, Holland, Billing, and Williams, and he has always turned to such books as these and Clark's *Reminiscences* and Sir James Paget's *Memoirs and Letters*, with satisfaction and delight. Dr. Sainsbury's volume is of the former class of books mentioned, and discusses principles and theories in medicine with considerable perspicacity and fairness.

With such a subject as Medicine, which is more an art than a science, there are necessarily some differences of opinion, and Dr. Sainsbury recognises this position by often holding a middle way, his two chief maxims being—

1. *Primum non nocere.*
2. *Secundo prodesse.*

These rules give a bias to all the reasoning in the book, and the propositions advanced are at least always suggestive, where not convincing.

That never-failing topic, the use of alcohol, has much said upon it, and that of perhaps too favourable a nature, physiologically. Every practising doctor, however, can see for himself that he must watch the action of his ally, alcohol, as carefully as he would note the inroad of his enemy, disease.

When we mention that the following other subjects are discussed, an idea will be given of the many good things provided for the young doctor in his spare hours, and for the old practitioner sitting in his easy chair. The rôle and prescribing of drugs, especially in combination; the bodily receptivity of drugs; the beginnings of disease; physiological

and pathological balances; food and fasting; food and different occupations; the use of condiments and tea and coffee; self-restraint and habit; medical treatment and the rest cure. Regarding nursing, our author says that as "the cowl makes not the monk," so the uniform makes not the nurse. He cautions against the rest cure by saying—"The multiplication of homes and sanatoria, and of all the apparatus for effortless existence, conceal this great danger; it behoves us to be alive lest we forget that health—bodily, mental, and spiritual—means *effort*." A dozen apothegms as good as that could be quoted. One more—"The touch which shall give life, when it does come, will come not by way of the laws of matter and of motion, but by way of the laws of the spirit—so true is it that man shall not live by bread alone."

Dr. Sainsbury's classical knowledge is employed to set off his doctrines, so that his Latin references are quite refreshing.

The book is neatly bound in red cloth, and is printed in easily-read type.

Phlebitis and Thrombosis (The Hunterian Lectures delivered before the Royal College of Surgeons of England in March, 1906). By WARRINGTON HAWARD, F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906.

THESE lectures embody all that is so far known about the subjects of phlebitis and thrombosis. They constitute a real contribution to our clinical knowledge, and their abundant wealth in references makes them specially valuable from this point of view. The author, too, has some very useful suggestions to make as to treatment.

On Carbohydrate Metabolism; with an Appendix on the Assimilation of Carbohydrate into Proteid and Fat; followed by the Fundamental Principles, and the Treatment of Diabetes dialectically discussed. By F. W. PAVY, M.D., LL.D., F.R.S. London: J. & A. Churchill. 1906.

WE have read this small book from beginning to end with engrossing interest, and its perusal has left us with a vividly intelligible conception of diabetes, the aims of treatment, and how to attain them. The hand of the master is evident throughout. This is a most convincing exposition of "Pavy's

views"—that "alimentary diabetes" is due to an impairment or loss of power to assimilate carbohydrate; while "composite diabetes" is, in addition, dependent on a faulty katabolism leading to a further contamination of the circulation with sugar. With infinite skill the whole subject of carbohydrate metabolism is discussed, and the assimilation of carbohydrate by conversion into proteid and fat is, with the help of beautifully-executed microphotographs, conclusively demonstrated. There is no such thing as impermeability of the kidney to sugar; the experiments and evidence adduced show convincingly that glucose cannot appear in the blood without passing off into the urine, and compel, once and for all, the abandonment of the glycogenic doctrine. This book should do much to clear away the confusion and misconception that exist around the whole subject of diabetes and its treatment.

On the Nature, Causes, Variety, and Treatment of Bodily Deformities, in a Series of Lectures. By the late E. J. CHANCE, F.R.C.S. Edited by JOHN POLAND, F.R.C.S. Second Edition. Volume I. London: Smith, Elder & Co. 1905.

THE six lectures which this volume contains were written in 1851, and were intended as a course to be delivered to the students at the Hunterian School of Medicine. They were published in 1862. On the death of the author, in 1895, Mr. Poland was asked by Mr. Chance's family to edit and revise the volume, and to publish the second, which had never been issued. In this edition of vol. i the original lectures have been supplemented by copious editorial notes.

The volume opens with an introduction defending the existence of "special" hospitals. Such an introduction is of interest to-day as a chapter in the history of hospitals, and, in view of the spread of specialism and the benefits resulting therefrom, it is curious to read at the present time the "protest" which the late Sir Benjamin Brodie published in the *Medical Times* of 1860.

The first lecture deals with the definition of deformity, the period of accession, the system operated on by the inducing cause, and the nature of the deviation produced. In the next three lectures the nature of the inducing causes of congenital deformity is considered, and the period during which they act. Lectures V and VI deal with the nature of the exciting causes of acquired deformity.

Throughout, these lectures expound general principles. The author's method of treating the subject is decidedly fresh and out of the beaten path; for this reason the volume is peculiarly readable. The reader who turns up the book in the hope of finding a detailed account of, say, talipes, with its treatment, will be disappointed. That, however, he can get in any of the many works on surgery at present in the market. What is presented to him here is a view of the general principles of the subject. These he will do well to study as a preliminary to more detailed reading; they will cause him to look at his cases with a new interest, and from a much broader standpoint.

The woodcuts and notes add to the value of the book, and those of the latter which come from the editor's pen bring the subject-matter well up to date. Mr. Poland deserves the thanks of the profession for having placed in their hands a work of such wide usefulness. We await with unusual interest the appearance of the second volume.

Indigestion: the Diagnosis and Treatment of the Functional Derangements of the Stomach. By GEORGE HERSCHELL, M.D. Third Edition.. London: Henry J. Glaisher. 1905.

THE advances in our knowledge of the functions and diseases of the digestive organs have been so considerable in the past few years that, in revising this edition for publication, the author has found it necessary to practically rewrite the whole book. But the labour has had its reward, for we have now before us a clear and logical statement of the more recent views in regard to the etiology, symptomatology, and treatment of the various forms of indigestion. The book is in no way a compilation boiled down from larger books; it is essentially practical, and bears the impress of coming from the author's own experience. Numerous clinical cases are briefly recorded to illustrate various aspects of the subject, and such methods of diagnosis as are described are such as could be used in everyday practice. There are, however, some errors which we have to note, but these are verbal rather than of the subject-matter. In page 72, for instance, the reader is referred for further information on a certain point to Chapter VII, whereas there are only six chapters in the whole book. On page 168, again, we have "Poupart's ligament," and at page 148 the phrase "when either of these

are deficient," &c. There are an undue number of such errors, and they show haste in reading the proofs. Otherwise we find the book excellent, and can with confidence recommend it to our readers.

The Practice of Medicine: A Text-book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D. Third Edition. London: Rebman, Limited. 1905.

IN the preface to this edition Dr. Tyson tells us that he has "sought to make its contents represent, as far as possible, the present state of modern medicine." This has entailed considerable addition and not a few changes, particularly in the section on infectious diseases. But the result is most satisfactory, for the book as we now have it is in every way admirable, and it cannot but rank as one of the best of the more recent text-books on the practice of medicine. It is well printed, and the illustrations throughout the text remain one of the features of the book. As this work gets better known in this country, we feel sure it will be appreciated as its merits demand.

A Manual of the Diseases of Children. By JOHN RUHRÄH, M.D. London: W. B. Saunders & Co. 1905.

THOUGH we are, as a rule, rather dubious of small text-books for use by students of medicine, we cannot but speak highly of this little volume. It is too much for a student, as the author remarks in his preface, to digest large text-books or monographs on all the many subjects with which he has to become acquainted. In this manual of some 400 pages the whole subject of pediatrics is reviewed in a short and easily get-at-able form; though in some instances style, and, perhaps, even clearness, are sacrificed to condensation. The chapters on infant feeding we would specially commend. It is doubtful, however, if the author's teaching on the subject of teething and the symptoms which it may induce, will be upheld by the majority of pediatricists. For the rest of the work we can say that it is wonderfully free of printer's errors. The book is rather well illustrated, it is supplied with a very full index, and, in connection with many of the subjects, the most complete articles extant are referred to. There is a chapter on

therapeutics, and the volume concludes with a most useful description of how the literature on any subject may be investigated.

The Diseases of Infancy and Childhood, Designed for the Use of Students and Practitioners of Medicine. By HENRY KOPLIK, M.D. Second Edition, thoroughly Revised and Enlarged. Illustrated with 184 Engravings and 33 Plates in Colour and Monochrome. London: Henry Kimpton. 1906.

SOME of the sections of this new edition have been rewritten, and considerable additions have been made to the account of the specific infectious diseases. The physiology and pathology of the newborn have been treated with a good deal of detail, and it may be mentioned that the section on infant feeding occupies 86 pages. The work may be regarded as, on the whole, a very reliable text-book by one well qualified to write. No mention is made of operative measures in the treatment of obstetrical paralysis of the arm which does not recover spontaneously. From his description of the mode of vaccination, it would appear that Dr. Koplik recommends the inoculation of only one spot, and that this spot should have an area of one-eighth of an inch square.

Some of the illustrations are very good, including, of course, the coloured plate which illustrates "Koplik's spots."

Reference Handbook of the Diseases of Children for Students and Physicians. By PROF. DR. FERDINAND FRÜHWALD. Edited, with additions, by THOMPSON S. WESTCOTT, M.D. With 176 Illustrations. London: W. B. Saunders Co. 1906.

PROF. FRÜHWALD is chief of the clinique at the Vienna Polyclinic, and his *Compendium of Children's Diseases*, which is here presented in English by Dr. Westcott, is founded on an experience of more than twenty years spent in study and teaching. The work now before us is, in the main, a faithful translation from the German, but occasional additions or alterations made by the editor are indicated by brackets. The illustrations used in the German edition have been reproduced here from the original plates, and a few extra plates from American sources have also been introduced. The

subjects are arranged in alphabetical order, and the cross-references make it easy to consult the book without the aid of index or table of contents. The compendium may be recommended as a good one, and the translation also strikes us as very satisfactory.

Transactions of the Association of American Physicians.
Vol. XX. Philadelphia: Printed for the Association. 1903.

THE Association of American Physicians, which has for its object "the advancement of scientific and practical medicine," is a most distinguished body; and with its membership limited as it is to 135, it would seem to constitute the academy of medicine of America. The list of members is a notable one, and America may well be proud of its Association, as of the individuals of whom it is composed.

This twentieth volume of *Transactions* is, as one would expect, an interesting publication. It contains forty papers, extending in their scope over the whole range of medicine and pathology. A considerable proportion of these communications, however, have already appeared in one or other of the American journals, and, indeed, several of them have been abstracted for our own "Abstracts in Medicine." But though many of the papers are not new to us, we are glad to have them gathered together in one volume, so that they may more readily be referred to in the future. The papers are too numerous to refer to each individually, and too varied to easily classify; but we can say that they are all of a high order of excellence, and we recommend the book as a whole to our readers.

Verhandlungen der Berliner Medizinischen Gesellschaft aus dem Gesellschaftsjahre, 1905. Band XXXVI. Berlin, 1906.

THIS volume of *Transactions* contains many interesting communications, with reports of the discussions by the members of the Society. The volume is in two parts; in the first are the discussions and the lesser communications, while the more important papers appear in full in the second.

The volume, which has been reprinted from the *Berliner Klinische Wochenschrift*, is an interesting record of the work of the Society, and will be found of use as a work of reference.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By ARCH. YOUNG, M.B., C.M., B.Sc.

Fracture of the Fifth Metatarsal Bone by Inversion. By F. J. Cotton, M.D. (*Boston Med. and Surg. Journal*, 30th August, 1906).—Cotton believes that cases of fracture of the fifth metatarsal bone due to forcible inversion of the foot are more common than is generally understood. Since Jones described his cases (*Annals of Surgery*, 1903, vol. xxxv, p. 697) Cotton has recognised six examples of the condition in his own practice, one of which he described in the *Boston Med. and Surg. Journal*, 1903, p. 735. The other five are given in the present paper.

Regarding them, he remarks that they present a marked uniformity, when one gets to know and look for them. The trauma is usually slight; so slight indeed, at times, as to lead to the possibility of fracture being very readily overlooked. The story is usually of an inadvertent misstep or movement which throws the foot on its outer border. This is followed by moderate pain and lameness, neither, however, extreme. The outer side of the foot is said to be "lame," and there is complaint of inability to rise on the toes.

Examination shows slight swelling, with little or no ecchymosis on the outer edge of the foot. Pain and tenderness are felt about the base of the fifth metatarsal. Crepitus and mobility are seldom easily demonstrated.

Of special diagnostic importance are—(a) localisation of maximum tenderness distinctly marked, close in front of (distal to) the base of the fifth metatarsal; (b) pain on pressing the distal end of the same bone, pain referred to the base of the metatarsal; (c) pressure upwards on the distal end, or putting the weight on the foot causes disproportionately slight pain.

If seen late, callus, even slight in amount, is usually demonstrable.

In many cases the fracture seems to be incomplete, only the outer part of the bone being severed.

Vas Deferens Anastomosis. By G. F. Lydston, M.D., Chicago (*The Journal of the Amer. Med. Assoc.*, 21st July, 1906).—In the course of an article on vasectomy for various disorders in the male, Lydston describes the method he follows in endeavouring to re-establish the continuity of the lumen in a united vas deferens. Shortly, the procedure is as follows:—After isolation and preparation of the divided ends of the vas, a long straight needle or a fine probe is passed up the lumen of the proximal segment, and made to penetrate its wall about an inch and a half from the free end. A strand of thick silk-worm-gut is now passed along the lumen and out through the opening in the wall made by the needle. The opposite end of the gut is passed along the lumen of the distal segment. This silk-worm-gut is left *in situ* with the object of conserving the patency of the lumen during the process of healing. End to end suture of the two segments of the vas over the silk-worm strand is then carried out, fine catgut being employed. The line of juncture is further protected by suturing around it the fascial envelopment previously raised in isolating the vas. The upper free end of the silk-worm strand is brought out through a puncture in the fascia and skin, issuing a short distance above the skin incision (a small one). It is fixed in position by any approved means, and is retained for at least a week. The fascia is carefully sutured with catgut, and the skin wound closed with horsehair or fine silk-worm-gut. Six cases

have been operated on in this way. In one, microscopical proof of restoration of function has been obtained. One apparent failure has been met with. In two cases the result is not known. In two the procedure was only recently carried out, and no reliable deductions can yet be drawn.

The Treatment of Lateral Curvature of the Spine. By Robert W. Lovett, M.D., Boston (*The Journal of the Amer. Med. Assoc.*, 23rd June, 1906).—In this paper there is presented a short summary of the views of the writer on the important surgical condition with which his name is now so intimately associated. He emphasises the prevalence of lateral curvature, and quotes certain statistics taken from representative investigations amongst school children in several continental countries. Thus, out of 731 boys and girls examined in Neuchâtel, 29 per cent had some degree of scoliosis; out of 1,418 boys and girls examined in Dresden, 25 per cent were so affected; in Moscow and in Petersburg, where 1,664 and 2,333 girls were respectively examined, the percentages were 29 and 26. In Lausanne the percentage of scoliosis amongst 2,314 boys and girls examined was 24·67. The occurrence of scoliosis in at least 25 per cent of all children certainly makes the problem worthy of serious consideration.

Lovett recognises two distinct types, which, he thinks, have not been sufficiently separated, viz., (1) the *postural or functional*, and (2) the *structural or organic*.

1. *The postural or functional type* is marked by a single curve, usually of slight degree, the greatest divergence of the vertebræ being rarely more than an inch from the median plane of the body. The most common type of what he terms "total" scoliosis is that with the convexity to the left, and Lovett places the frequency of left "total" scoliosis as 90 per cent, the curve being to the right in only 10 per cent.

The diagnostic points are four—(a) Gradual sweep of spine to left (or right), almost, if not quite, reaching median line again at upper end; (b) elevation of left shoulder, depression of right (or *vice versa* in the less frequent cases); (c) twisting of shoulder girdle, right side being carried back and left projected forward (or *vice versa* as before), seen well from above, where plane of pelvis may be taken as means of estimating alteration in the plane of the shoulder girdle; (d) if the patient bends forward till the trunk is horizontal the right (or left) side of the back is seen to be higher than the left (or right), if one glances along the level of the spine from behind or from the front. The elevation is slight, and is probably merely the persistence of the twist referred to under (c). It can be produced at will in a normal subject by raising the right (or left) foot with a book, and is within the physiological limits of normal spinal movements. Postural scoliosis might therefore be described as "faulty attitude."

Postural curves may persist unchanged as "total" curves, may be cured, or may change to compound structural curves.

Transitional cases may, therefore, be expected, and should be carefully watched for.

2. *The structural or organic type* shows definite organic change in the vertebral column and its attached structures. Three forms are met with—(a) single and "total"; (b) compound, consisting of two approximately equal opposite curves; (c) compound, showing three curves, one large and central and two smaller curves, one to either side of this. These compound curves are spoken of as primary and secondary (or compensatory).

In the structural type there is a characteristic prominence, in a backward direction, of the chest wall or loin. While in postural scoliosis a backward projection occurs on the side of the concavity (e.g., in a left postural curvature the prominence is on the right side), in organic curvature the prominence is on the same side as the convexity of the lateral curve (e.g., in a left organic curvature it would be on the left side). In marked cases the prominence is visible in the erect posture, but in mild cases the horizontal position may require to be assumed to render it at all evident.

Unlike the postural type, this convex-sided rotation is not within the normal mechanism of the spine, and must be regarded as a superadded pathological phenomenon due to yielding of the structures forming the vertebral column. Abnormal plasticity and unequally distributed weight may be regarded as explaining the yielding, and, as a result also, the twisting of the vertebrae.

In every structural curvature, therefore, there is lateral curvature plus rotation towards the convex side. The curved region becomes stiff and less mobile, the body outline is distorted, the hip on one side is rendered unduly prominent, one shoulder is elevated, and various other departures from proper symmetry occur. The vertebrae are changed in shape, ligaments and muscles on the convexity are shortened, and decided resistance to restoration of symmetry exists in the column and its attached structures. The treatment of postural and structural cases must, therefore, be substantially different.

Treatment of postural scoliosis.—This consists in great part in substitution of a correct for a "faulty attitude." Exercises, such as bending to one side, hanging, circumduction of the trunk, &c., may be expected to aid in restoring flexibility to the vertebral column. Correct attitude in standing is to be sought in all positions. Failure in obtaining a good result will occur if overwork, bad bodily hygiene, and fatigue are not avoided; also, if the child is badly fed and improperly cared for. A trained gymnastic teacher will accomplish more than the average parent, however careful. Visual defects, inequalities in length of limb, and other irregularities must be corrected.

Treatment of structural scoliosis.—This consists of two parts—*A*, means directed towards loosening the stiffened parts of the spine, so as to render an improved position possible; *B*, means which may permanently establish and retain the improved position. These two elements may, in actual practice, go hand in hand, but they should be kept quite distinct in formulating a plan of treatment.

A. Treatment to loosen spine.

1. *Gymnastics*—given free-standing, with pelvis fixed (else the bending and other movements become general, and not local). The exercises should be as simple as possible, and are best given by a competent gymnast; they should be given for a period from one to three hours daily, and systematically carried out for several weeks at least. Probably only in the slighter cases will satisfactory results be got by their means alone.

2. *Gymnastics given in apparatus*—a method in general use in Germany, requiring complex and expensive apparatus. The latter is made on the pendulum principle, and by its use the exercises can be well localised, and the loosening of the spine and strengthening of the muscles be made to go hand in hand.

3. *Passive stretching of the spine*—secured by hanging by the arms, or by traction on the head by a Sayre sling. Lovett thinks, however, that a pull in the length of the spine is not an economical use of force, just as a bent stick is less easily straightened by pulling the ends apart than by pressing the convexity of the bend against the knee while the ends are held in the hands. The Weigel-Hoffa frame is planned for passive stretching of the spine, the patient being suspended by the head, and lateral pads being run in from the sides of the frame so as to make pressure in various directions. Lovett thinks that the traction in the length of the spine (due to the body weight) tends to stiffen it against side pressure, hence the force is not economically used. He thinks it is much better to apply pressure to the slack spine. This can be secured by applying the corrective forces for the lateral deviation and the rotation in a simple form of apparatus applied to the trunk of the patient in the prone position, broad canvas straps (one above and one below) fixing shoulders and pelvis respectively, and a central one exerting pressure upon the convexity of the abnormal prominence. The apparatus is as simple as possible, and is shown in illustrative figures accompanying the article.

A more efficient apparatus, made by Dr. Z. B. Adams, of Boston, which consists of a table, split transversely into five parts, on which the patient lies

prone, with the knees flexed, is also described. By movable pads the necessary correction is obtained.

4. *Stretching by plaster of Paris jackets (forcible correction).*—This is useful for severe cases, where continuous stretching is required. As in the previous case, the best result is got if the jackets are applied with the patients prone, with the legs flexed, as by this means the physiological curves of the spine are loosened. A suitable apparatus, devised by Dr. Adams, is here again described and illustrated by plates. It consists of a heavy gas-pipe frame, with adjustable crossbars, rods, and rings. Plaster jackets applied in the improved position got by such means can be changed from time to time, on each occasion further correction being aimed at.

B. *Treatment to retain the improved position.*

1. *Self-correction gymnastics.*—Different forms of this are described, including the so-called "Hoffa self-correction."

2. *Gymnastics for contraction of the muscles on the convex side of the lateral curve.*—These consist of side-bendings against resistance, and active exercises as heavy as can be made.

3. *Backward bending gymnastics.*

4. *Symmetrical heavy gymnastics.*—In these the patients should be pushed to the limit of fatigue. The raising of heavy bars and weights, say dumb-bells of from 5 to 10 or 20 to 30 lb., or bars weighing from 10 to 30 lb., are found useful. The great mistake, in Lovett's view, is the employment of gymnastic retentive treatment in too small dosage.

5. *Retention by apparatus.*—The use of plaster jackets may be followed by the employment of braces, corsets, and other appliances, made of accurate form so as to fit the corrected trunk, and made of materials whose weight, resistance, and cost may suit the particular case. As a rule, after forcible correction a suitable jacket or other support must be worn for at least two years, and even then only very gradually discontinued.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Infantile Mortality.—A National Conference on this subject was held at Westminster in June of this year under the presidency of Mr. John Burns, President of the Local Government Board. The Report of the proceedings has now been published (King & Son, Westminster), and it contains many interesting papers and discussions. The feeding of infants naturally attracted attention in its various aspects, such as municipal milk depôts, artificial foods, inability of the mother to suckle, and so on. These are all subjects on which individual medical men should be able to speak with authority, but, unfortunately, on many of them there is still much difference of opinion in the profession. Accordingly, any papers which lay exact information before us should be welcome.

Dr. McCleary, the Medical Officer of Health for Hampstead, in discussing the public supply of pure or prepared milk, lays special stress on the necessity of combining the distribution of the milk with adequate medical supervision. These institutions must be medical dispensaries, and nothing must be done which can in any way lead mothers to avoid nursing their children at the breast.

Mr. James Knight, D.Sc., contributes an article on the chemistry of infant foods. In it he draws attention to the laxity of the instructions accompanying most of these foods. Of one of them he says, "The proportions are stated in such vague terms that the employment of this food resolves itself into a rule of thumb, with the infant as reagent." This paper is well worth studying in

connection with the papers abstracted in this *Journal* from the *Practitioner's* special number on infants.

Professor Sims Woodhead discusses alcoholism in relation to infantile mortality. He invites the medical profession to collect statistics on the causal connection between parental alcoholism and degeneration. As an example, he quotes from a paper by Professor Bunge, of Basel, on alcoholism as a cause of the inability of women to suckle their children (*Die zunehmende Unfähigkeit der Frauen ihre Kinder zu stillen*). Dr. Bunge has collected a large number of cases where the history of the puerpera and of her parents has been obtained. His conclusions confirm those formed some years ago with much smaller numbers, and point to alcoholism in the father being a common cause in the daughter of inability to suckle. Thus, of young women able to nurse their infants, only 2·6 per cent had drunken fathers—that is, where the woman had herself been breast-fed. Where the mothers had been able to suckle their daughters, who could not nurse, the percentage of drunken fathers rose to 42·2. According to Bunge, where the father is a drinker, not the daughter alone loses the power of suckling her child, but this power is lost for coming generations. He has certainly shown that a woman who cannot suckle often has daughters who cannot suckle; but the generalisation about a drunken father and the permanent loss in the stock of power to suckle, is one which no Weismannist would accept.

Dilatation of the Cervix Uteri.—Sir William Sinclair introduced a discussion on the use of laminaria tents, for the purposes of diagnosis and treatment in diseases of the non-pregnant uterus, at the London Obstetrical Society (*Trans. London Obstet. Soc.*, May, 1906). He believed there was no known substitute for laminaria in gynaecology, as there was no known substitute for opium and its derivatives for the relief of pain.

It was to be hoped that the fashion of rapid mechanical dilatation with steel instruments had run its course, and that its memory would remain only as a discreditable episode in the history of gynaecology. He condemned the use of Bossi's dilator also in midwifery.

He was of opinion that the fear of sepsis arose, to a great extent, because in this country the tangle tent had been in use before the principles of asepsis were understood. Even the pioneers of gynaecology in Scotland—such as Simpson, Keiller, and others—were in the habit of using the same tent more than once without disinfection; they were at work before Listerism. They were more used in Germany, because their employment in the country had not begun till asepsis was understood, and had not been prejudiced by the unfavourable consequence which had sometimes resulted here. Sir William gave a demonstration of the material which is obtained in Iona, and explained the method of making the finished article in the island. It was thoroughly saturated with disinfectant in every cell of the tangle. Consequently, to secure asepsis, all that is required is to soften the tent slightly in a hot, strong solution of the same antiseptic immediately before introduction. He said these Iona tents would soon be in the market.

In the discussion which followed, attention was drawn by Dr. Inglis Parsons and others to the difficulty occasionally experienced in removing the tent owing to its expansion above the constriction. He preferred metal dilators and used them at several sittings, at the first of which he gave an anæsthetic.

Dr. Boxall sterilised them by dry heat, using the household oven in cases of necessity. Dr. Herbert Spencer and Dr. Herman said that in their schools the tangle tent had never gone out of fashion, and the latter reminded the Society that Dr. Matthews Duncan had shown, experimentally, that the tent expanded against a pressure of 640 lb. to the square inch. Dr. Tate, on the contrary, had given up their use at St. Thomas's, and had not seen bad results from the slight lacerations caused by metal dilators. The tangle tent caused much pain.

Clinical Report of the Rotunda Hospital.—Dr. Tweedy's report

for the year 1904-1905 is published (*Dublin Journal of Med. Science*, August-September, 1906). It contains details of many interesting cases. Dr. Tweedy claims a mortality of 8 per cent in his eclampsia cases, treating them with morphia and expectancy; though under expectant treatment he includes washing out of the stomach and saline infusions. Hyperemesis gravidarum is treated by total abstinence from food by the mouth for three days, and by rectal purgation and saline enemata. One of the cases of Cesarean section was the second operation on the same patient; on this occasion the operation was performed before labour had started, and, though the os was tightly closed, no complication ensued. A case of spontaneous inversion of the uterus in the third stage occurred after a natural birth; the uterus was easily reduced. One woman was spontaneously delivered, who was in a horribly foul condition from venereal sores; sepsis ensued, and Dr. Tweedy proposed to ligature the pelvic veins. However, on opening the abdomen, he found the uterus bathed in pus; panhysterectomy failed to relieve the condition, and the patient died.

Auscultation of the Fœtal Heart in Early Pregnancy.—Dr. Schwab (*Zentr. f. Gynæk.*, No. 22, 1906) maintains that by a simple procedure it is made comparatively easy to hear the fetal heart in the eighteenth week of pregnancy. He emphasises the importance of hearing the fetal heart-beat, not merely to verify the diagnosis of pregnancy, but also to make sure that the fetus is alive. His method consists in fixing the fetus at the fundus uteri by sinking the edge of the hand as deeply as possible behind the symphysis pubis and then drawing the fetus upwards and fixing it, when the heart-beat will become audible on auscultation if the fetus is alive.

Vaginal Incision of the Uterus in Incarcerated Gravid Retroflexion.—Dr. Bennecke (*Zentr. f. Gynæk.*, No. 23, 1906) describes a case where he employed this method for the first time in Germany in the treatment of gravid retroflexion. In this condition the operation is more difficult than at term, and was not concluded without tearing of the bladder; this was probably due to partial necrosis of the organ from continued pressure. In Dr. Bennecke's case the cervix was long and hard, and did not dilate with vaginal packing. As the patient's state was threatening her life he determined to empty the uterus by the cutting operation. The cervix was split on its posterior surface as high as the posterior fornix, and the peritoneum was pushed up with the finger; the incision was continued up through the internal os, but this did not give room to extract the fetus. A similar procedure was adopted in front, but in separating the bladder a tear was made into a pocket of that organ. The rent was immediately repaired with catgut; this was tedious and difficult, as the stitches tore through, and had to be inserted in several layers. The uterus was then easily emptied, and was packed with gauze to arrest the hæmorrhage, which was not more severe than in an ordinary emptying of the uterus in an abortion. The incised edges were then brought together accurately with stitches, and a small gauze drain was left in the anterior and in the posterior vaginal wounds. The patient made a good recovery after suffering from cystitis.

DISEASES OF THE EAR.

By WALKER DOWNIE, M.B., F.F.P.S.G.

Intracranial Lesions of Otitic Origin. By M. Allan Starr, M.D. (*Archives of Otolaryngology*, June, 1906).—In his paper Dr. Starr considers (1) the possible cerebral complications of otitis media; (2) the symptoms which aid us in our diagnosis; (3) the proper methods of surgical treatment; and (4) the results of surgical operations for these complications.

1. In addition to the better known cerebral complications, he describes acute encephalitis, which may occur at any age, resulting from otitis media. It consists of an area of hæmorrhagic softening, either on the surface of the brain or beneath the cortex, and it results in destruction of the brain tissue so affected. It is not, however, fatal, and may result in the production of a sclerotic patch of varying extent. The symptoms are similar to those of cerebral abscess, but there is no optic neuritis, no irregularity of the pupils, no vertigo, and very little headache.

2. In discussing the diagnosis, after enumerating the usual symptoms of brain-abscess, he takes up two of the newer methods of investigation—the examination of the cerebro-spinal fluid obtained by lumbar puncture, and the examination of the blood. In all forms of meningitis there is an increase of the leucocytes in the cerebro-spinal fluid, which is not the case in abscess—a differential point of some importance.

3. In operation, the procedure recommended consists in making a large exposure of the brain by means of an osteoplastic flap, exposing an area of 3 to 4 inches. The evacuation of an abscess is facilitated by turning the patient over, so that the opening of the abscess is at the most dependent part. Deep incisions into the brain are justified, but the fingers should never be introduced; and when a deep abscess is found it should be emptied by gravitation, and a decalcined bone, or rubber, tube inserted. A diffuse encephalitis should be left alone, or the degenerative area may be cut out, and hæmorrhage can be arrested by tampons of sterile gauze. Dr. Starr recommends that, during the entire operation, very hot sterile water should be run constantly over the brain, as practised by Horsley. The bone-flap is replaced, and an opening is left at the inferior angle for the passage of the drain.

4. Dr. Starr has collected, from the literature of the last six years, reports of 54 temporal, 25 cerebellar, and 2 occipital abscesses, secondary to otitis, where operation had been performed—a total of 81 cases. In 6 cases the abscess was not found at operation, but at autopsy; 42 cases recovered after operation; and death occurred in 39. The cerebral cases were particularly unfavourable, having a mortality of 16 in 25.

The author urges early operation, careful and free incision when abscess is located, and the after-drainage must be perfect.—W. D.

Diabetes and Bright's Disease in Relation to Suppurative Osteomyelitis of the Mastoid. By Thomas Hubbard, M. D., Toledo, O. (*Laryngoscope*, July, 1906).—Dr. Hubbard writes, "When mastoiditis develops as a complication of Bright's disease or diabetes, it becomes necessary to make a differential diagnosis of groups of symptoms common alike to the local infection, with intracranial extension, and the systemic diseases." He points out the necessity of having systemic diseases constantly in mind in dealing with cases of mastoiditis and suppurative ear diseases, and remarks that "the wise surgeon will take time to get his patient into the best possible condition consistent with the urgency of symptoms. Adherence to this law of surgery, careful study and preparation of the patient, will result in the spontaneous recovery of some cases of mastoiditis presenting marked indications for immediate operation; and, further, those that come to operation will have a better chance of favourable result."

The principal symptoms common to intracranial extension of suppurative ear conditions, and to uræmia and diabetic toxæmia, are noted, and reports of six illustrative cases are given. In four, mastoiditis developed in diabetic patients, and in three of these, although severe in character, the local inflammatory action subsided under general and local sedative treatment, with, in one case, incision of the membrana tympani, but without other operative procedure. It is interesting to note that these patients were aged respectively 60, 63, and 65.

In one of the cases of mastoiditis associated with nephritis, the uræmic symptoms were at first thought to be due to intracranial extension, and operation was urged, but refused by the friends of the patient. After an

examination of the urine had revealed the true nature of the case, and suitable general treatment had been adopted, the mental state cleared up, but an operation was performed a few weeks later.

In the last case, during an attack of otitis media in an albuminuric, mastoiditis developed. There was a copious discharge from the ear, and mastoid oedema and tenderness were pronounced. Headache, vertigo, constant nausea, and decidedly impaired vision were noted. Under general treatment the mastoid and head symptoms cleared away.—W. W. C.

Lesions of the Internal Ear Consecutive to Suppuration of the Tympanum. By Ferreri (*Archives Internationales de Laryngologie, et de Rhinologie, et d'Otologie*, January-February, 1906).—Otologists are at present paying much attention to lesions of the internal ear. In this paper, a long one extending to fifty pages, the author, besides giving some personal observations, draws freely upon the literature of the subject, which, as is shown by the list of authorities, is already fairly extensive. The result is an interesting and valuable contribution, which merits a careful perusal by those especially interested in ear diseases. The subject is discussed under various headings—etiological, diagnostic, pathological, and so on. Differing from some authorities, the author—rightly, we think—states that the labyrinth may be involved during the progress of the acute as well as of the chronic variety of middle-ear suppuration. As a rule the internal ear is not involved in its totality; an osteoplastic defensive process in many cases anticipates the advance of the suppurative condition.

The author discusses the differential diagnosis of fixation of the stapes, intracranial complications, and involvement of the internal ear, all occurring in the course of middle-ear suppuration. He points out that symptoms of labyrinthine disease do not necessarily, or indeed commonly, point to actual suppuration in the internal ear. They are very often due to simple inflammatory, or even purely congestive processes, brought about by the proximity of the middle-ear disease.

The vulnerability of the different parts of the internal wall of the tympanum is considered, and, following Hinsberg, Ferreri gives the track of invasion as through the external semicircular canal or the foramen ovale, in the majority of cases, and in this order of frequency. Much more seldom does the disease extend by way of the foramen rotundum, the superior canal, or the promontory. By a careful study of the symptoms in any case, it is possible to surmise the point of danger. Rapid deterioration of hearing, with, it may be, tinnitus and loss of bone conduction, would point to threatened or actual invasion of the labyrinth by way of the foramen ovale, whereas vertigo would suggest the external semicircular canal as the route.

The line of treatment depends on the exact diagnosis, as far as that can be made out. Often this can only be arrived at by awaiting the result of the performance of the radical mastoid operation. In a word, the author advises, and most aural surgeons will agree with him, that the inner ear should not be opened immediately unless the examination points unmistakably to pyo-labyrinthitis. During the radical mastoid procedure, the common sites of invasion should be carefully examined, and a carious focus should be followed, but nature's attempt at limiting the advance should be respected, and unless, as has been stated, urgently indicated, the opening into the internal ear should be delayed pending the result of clearing out the middle-ear spaces. In most cases it will not be called for.—W. S. S.

Books, Pamphlets, &c., Received.

- Pathogenic Micro-organisms, including Bacteria and Protozoa : A Practical Manual for Students, Physicians, and Health Officers,** by William Hallock Park, M.D., assisted by Anna W. Williams, M.D. Second Edition, Enlarged and thoroughly Revised. With 165 Engravings and 4 Full-page Plates. London : Henry Kimpton. 1906. (18s. net.)
- Uterine Fibroids and other Pelvic Tumours,** by Bedford Fenwick, M.D. London : E. H. Blakeley. 1906. (3s. 6d.)
- Practical Prescribing and Dispensing for Medical Students,** by William Kirkby. Second Edition. (Manchester University Series.) Manchester : Sherratt & Hughes. 1906. (5s. net.)
- A Short Practice of Medicine,** by Robert A. Fleming, M.A., M.D., F.R.C.P.E., F.R.S.E. London : J. & A. Churchill. 1906. (10s. 6d. net.)
- The Extra Pharmacopœia of Martindale and Westcott, Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B.Lond., D.P.H.** Twelfth Edition. London : H. K. Lewis. 1906. (10s. net.)
- Glasgow Corporation : Report of the Medical Officer of Health of the City of Glasgow.** 1905. Glasgow : Robert Anderson.
- Clinical Diagnosis : A Text-book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Work, and Practitioners of Medicine,** by Charles Phillips Emerson, A.B., M.D. London : J. B. Lippincott Company. 1906. (21s. net.)
- Kimpton's Pocket Medical Formulary,** by E. Quin Thornton, M.D. New (Seventh) Edition, Revised. London : Henry Kimpton. (7s. 6d. net.)
- The Practice of Pediatrics, in Original Contributions by American and English Authors.** Edited by Walter Lester Carr, A.M., M.D. Illustrated with 199 Engravings and 32 Full-page Plates. (The Practitioner's Library.) London : Henry Kimpton. 1906. (31s. 6d.)
- Second Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum (Andrew Balfour, M.D., B.Sc., F.R.C.P.Edin., D.P.H.Camb., Director).** Khartoum : Department of Education, Sudan Government. 1906.
- The CHCl₃-Problem,** by Richard Gill, B.Sc., M.B., B.S.Lond.Univ., F.R.C.S.Eng. In Two Volumes. Vol. I : Analysis. Vol. II : The Physiological Action of CHCl₃. Edinburgh : William Blackwood and Sons. 1906. (Two Vols., 10s. net.)
- Clinical Lectures on Neurasthenia,** by Thomas D. Savill, M.D.Lond. Third (Revised and Enlarged) Edition, 1906. London : Henry J. Glaisher. (7s. 6d. net.)

- The Hygiene of Mind**, by J. S. Clouston, M.D., F.R.S.E. With 10 Illustrations. London: Methuen & Co. 1906. (7s. 6d. net.)
- Collected Papers on Circulation and Respiration (First Series, chiefly containing Laboratory Researches)**, by Sir Lauder Brunton, M.D., D.Sc., LL.D., F.R.S., F.R.C.P. London: Macmillan & Co., Limited. 1906. (7s. 6d. net.)
- Clinical Studies in the Treatment of the Nutritional Disorders of Infancy**, by Ralph Vincent, M.D., M.R.C.P. London: Baillière, Tindall & Cox. 1906. (3s. 6d. net.)
- The Life of Pasteur**, by René Vallery-Radot. Translated from the French by Mrs. R. L. Devonshire. Popular Edition. London: Archibald Constable & Co., Ltd. 1906. (7s. 6d. net.)
- Medical Electricity: a Practical Handbook for Students and Practitioners**, by H. Lewis Jones, M.A., M.D. Fifth Edition, with Illustrations. London: H. K. Lewis. 1906. (12s. 6d. net.)
- The Treatment of Syphilis**, by Alfred Fournier. English Translation of the Second Edition (Revised and Enlarged) by C. F. Marshall, M.D., F.R.C.S. London: Rebman, Limited. 1906. (21s. net.)
- Portfolio of Dermochromes**, by Professor Jacobi; English Translation of Text by J. J. Pringle, M.B., F.R.C.P. Supplement, containing 76 Additional Coloured Illustrations. London: Rebman, Limited. 1906. (Half roan, 28s. 6d.)
- Handbook of Electricity in Medicine**, by W. H. Guilleminot; Translated by W. Deane Butcher, M.R.C.S. With 8 Plates in Colours and 79 Illustrations. London: Rebman, Limited. 1906. (17s. net.)
- The Diseases of Women: a Handbook for Students and Practitioners**, by J. Bland-Sutton, F.R.C.S.Eng., and Arthur E. Giles, M.D., B.Sc.Lond., F.R.C.S.Edin. Fifth Edition, with 129 Illustrations. London: Rebman, Limited. 1906. (11s. net.)
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- Minor and Operative Surgery, including Bandaging**, by Henry R. Wharton, M.D. Sixth Edition, Enlarged and thoroughly Revised, with 532 Illustrations. London: Rebman, Limited. (14s. net.)
- A Text-Book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease**, by Arthur R. Cushny, M.A., M.D.Aberd. Fourth Edition, thoroughly Revised. Illustrated with 52 Engravings. London: Rebman, Limited. (17s. 6d. net.)
- Atlas of Typical Operations in Surgery**, by Dr. Ph. Bockenheimer and Dr. Fritz Frohse. Sixty Illustrations from Water Colours by Franz Frohse. Adapted English Version by J. Howell Evans, M.A., M.B. London: Rebman, Limited. 1906. (65s. net.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDING 20TH OCTOBER, 1906.**

	WEEK ENDING			
	Sept. 29.	Oct. 6.	Oct. 13.	Oct. 20.
Mean temperature,	51·7°	53·8°	53·6°	45·3°
Mean range of temperature between day and night, . .	30·4°	31·1°	29·6°	21·7°
Number of days on which rain fell,	0	3	6	7
Amount of rainfall, . . ins.	0·00	0·71	1·22	1·27
Deaths registered,	283	294	307	274
Death-rates,	17·7	18·4	19·2	17·1
Zymotic death-rates, . . .	0·4	0·8	1·6	1·1
Pulmonary death-rates, . .	3·6	4·0	4·0	4·1
DEATHS—				
Under 1 year,	83	85	76	62
60 years and upwards, . .	57	69	64	57
DEATHS FROM—				
Small-pox,	1*	...	...	...
Measles, . . . . .	...	...	2	...
Scarlet fever, . . . . .	...	...	2	2
Diphtheria,	2	3	2	...
Whooping-cough,	8	7	15	8
{ Fever,	4	4	2	2
{ Cerebro-spinal fever, . .	2	4	3	1
Diarrhoea,	57	26	32	23
Croup and laryngitis, . .	...	...	1	1
Bronchitis, pneumonia, and pleurisy,	36	37	48	51
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Diphtheria and membranous croup,	43	34	25	27
Erysipelas,	35	30	23	28
Scarlet fever,	58	54	45	44
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	15	20	6	11
Continued fever, . . . .	...	...	...	...
Puerperal fever,	1	5	3	1
Measles,†	15	20	17	17

* Chicken-pox.

† Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 25th October, 1906.

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ORIGINAL ARTICLES.

NOTES OF A CASE OF ENTERIC FEVER IN WHICH THE
ACTION OF THE TYPHOID VIRUS WAS DIRECTED
MAINLY TO THE KIDNEY (NEPHRO-TYPHOID).¹

By ALEX. NAPIER, M.D., F.F.P.S.G.,

Physician, Victoria Infirmary, Glasgow ; Examiner in Medicine, Glasgow
University ;

AND

R. M. BUCHANAN, M.B., C.M., F.F.P.S.G.,

Bacteriologist to the Corporation of the City of Glasgow.

THE patient, Mr. H. D. L., aged 26, was in perfect health till Tuesday, 11th July of last year (1905), when he began to suffer from what he regarded as a bad cold in the head and chest; this lasted for three days. On Friday and Saturday, 14th and 15th July, a "measly" eruption was present on face and arms. On Sunday and Monday, 16th and 17th July, the urine became "red" in colour (just as it did later on), the signs of a cold still persisting. At the end of two more days

¹ Read before a meeting of the Glasgow Medico-Chirurgical Society held on 4th May, 1906.

the urine had cleared in colour, but the patient still felt ill and miserable and out of sorts, but had not yet taken to bed. This condition continued till Sunday, 30th July, when the urine again became reddish-brown in colour, and it kept this appearance till 2nd August, when patient gave in and went to bed, and sent for medical assistance.

The patient was found on 2nd August to be flushed, perspiring freely, slightly "heady," with furred tongue, pulse about 100, and temperature just touching 105° F. No vomiting, slight headache, dull pain in lumbar region, especially towards right, and in scar of an old injury in right flank. Bowels moving twice or thrice in twenty-four hours, but motions "formed," and very dark in colour; slight abdominal distension; no gurgling in right iliac fossa; no enlargement of spleen; no rose spots.

Urine scanty, 9 fluid oz. in first twenty-four hours of treatment; dark reddish-brown in colour, in consistence and colour resembling thin chocolate; copious coffee-ground sediment; faintly acid; specific gravity, 1022; albumen very abundant, specimen almost solidifying on boiling, giving over 15 per 1,000 Esbach; prompt blood reaction with guaiac; no sugar. Sediment: numerous blood corpuscles; much granular and amorphous detritus; numerous tube-casts—granular, hyaline, and epithelial—many having blood corpuscles and renal epithelium adhering. There was only one micro-organism present, but it occurred in enormous numbers, and was of such unusual appearance (after staining) that it was at first regarded as of atmospheric origin, an idea which had to be abandoned on finding the bacillus in a specimen within twenty minutes after it had been passed. This bacillus was very large and thick, slightly curved, rounded at either end, showed deep polar staining, with granular matter and occasionally vacuoles in its length. It stained best with Löffler's methylene blue, carbol-gentian-violet, and dilute carbol-fuchsin, and did not hold Gram.

On cultures being made by Dr. R. M. Buchanan in the laboratory of the Sanitary Office, the bacillus at once reverted to type, and was identified as the bacillus typhosus. The patient's blood then gave a positive reaction to Widal's test.

The case was at first regarded, though with some misgiving, as one of very acute nephritis of rather aberrant type, the temperatures being persistently rather high, while there was also a total absence of localised or general oedema. The discovery of the bacillus, and its identification, cleared the

diagnosis, which was clinched by the fact that two of the patient's attendants caught the disease from him, and passed through the fever in its usual typical form.

As regards the patient's progress, the following points are to be noted:—

1. The temperature from 2nd August till 9th August varied from 102° to 104° F., falling by lysis to normal on 12th August; for five more days it fluctuated between 99° and 100° F., and then fell permanently to normal and subnormal. The only accident in this respect was on 16th August, when, after a shivering, the temperature suddenly shot up to 104° F., and just as suddenly fell; nothing could be discovered to account for this.

2. The pulse was throughout (and still is) somewhat irregular, but this has been present for a good many years, and is probably functional; its rate varied from 80 to 100. In other respects it was good, but of rather high tension.

3. There was no diarrhoea. The motions numbered two or three per day, but were usually "formed," and were dark in colour. When examined bacteriologically no bacillus typhosus could be found.

4. The urine, at first scanty, gradually increased in quantity, while the proportion of blood and albumen diminished from day to day. Blood was detectable (guaiac test) as late as 4th December, 1905, and a very faint cloud of albumen as late as 28th April, 1906. During the past ten days (8th May) the urine is reported albumen-free.

The bacilli before described diminished gradually in numbers, but were last found in the urine as late as 21st November, 1905, *quite four months from onset of illness.*

The treatment (dietetic and other) had, fortunately, from the first been such that no special change had to be made when the true nature of the kidney trouble was demonstrated by bacteriological methods—a strictly limited and regulated diet, diaphoretics (in particular, the warm air bath obtained from twelve incandescent electric lamps arranged inside a large cage), and wet cupping; urotropine was given for months with the view of making the urine an unsuitable medium for the growth of the micro-organism, with but little apparent effect, as the bacillus was still present on 21st November, 1905.

The patient is now (8th May, 1906), after six months' sojourn in the South of England, apparently in perfect health.

Remarks.—I would direct attention to the difficulty of diagnosis in this case, overcome finally only by bacteriological methods. The patient in all probability suffered from an ordinary acute catarrhal nephritis, on which the enteric element was grafted. The prolonged presence of pathogenic bacilli in the urine is worthy of note; for over four months the patient was voiding such bacilli in the urine, and was therefore presumably capable of distributing infective material. This opens up a prospect of prolonged detention of enteric patients in whose urine the bacillus typhosus is found.

By Dr. R. M. Buchanan.—On 21st August, 1905, Dr. Alex. Napier submitted a sample of urine (marked No. 1), along with a swab from the throat of a patient, H. D. L., who had suffered from acute nephritis for a fortnight, with marked albuminuria but no anasarca. At the same time Dr. Napier reported that he had found a large bacillus in the urine during the course of the illness, and was desirous to know the nature of this organism.

The following is the record of the microscopical examination of the urine made at the time:—

The urine is clear, tinged with blood, and on microscopical examination shows leucocytes, red blood corpuscles, and epithelial cells of bladder origin. No cells of renal origin or tube-casts are visible. A bacillus, almost the size of bacillus anthracis, is seen in large number in the centrifugalised deposit. It has rounded, very slightly tapering ends, stains deeply with Jenner's eosin-methylene blue, leaving a clear space in the centre resembling a spore. Fracture of the bacillus through this clear space has given rise to numerous short forms, with one end rounded and deeply stained, and the other end clear and concave. Numerous filaments formed by the bacillus are observed, and frequently a beaded appearance is evident in the filaments. Some rods and threads are much swollen and disfigured and vacuolated. Here and there well-marked smaller rods, mostly in clumps, are observed uniformly stained with Bismarck brown. The bacillus is decolourised by the method of Gram.

A series of culture tests were made from the urine and the centrifugalised deposit of the urine. The results were profuse and almost pure growths, at once suggesting, both from naked-eye and microscopical examination, the bacillus typhosus. The specificity of the organism was further confirmed by agglutination tests with a known typhoid blood, and also with

the patient's blood, the bacillus being agglutinated by both bloods with a dilution of 1 in 100 within fifteen minutes, and with a dilution of 1 in 1,000 within sixty minutes.

The examination of a specimen of the fæces submitted on 22nd August failed to reveal the presence of bacillus typhosus.

On 2nd October another sample of urine was received to be tested for the presence of bacillus typhosus. The centrifugalised deposit showed a large number of red blood corpuscles and of bacilli conforming to those observed in the first examination. One loopful of the urine yielded six colonies of the bacillus typhosus, indicating the presence approximately of 2,000 organisms per c.c. From one loopful of the centrifugalised deposit an uncountable number of typhoid colonies developed. These groups were also confirmed as to their specificity by the agglutination test.

Again, on 10th October, the urine was found still to contain bacillus typhosus in great number.

On 30th November the centrifugalised deposit still showed many red blood corpuscles and a large number of leucocytes, but no bacillus conforming to bacillus typhosus, while negative culture tests indicated the disappearance of the organism from the urine.

On 29th December the last specimen of the series was received, with a note that it had been examined in London and reported as free from typhoid bacilli. It was also stated to give no blood reaction and almost no evidence of albumen. The culture tests confirmed the absence of the bacillus.

Remarks.—Hueppe has the credit of having first directed attention to the occasional appearance of the typhoid bacillus in the urine, just twenty years ago.

The methods for the identification of the organism were at that time very far from adequate, yet the correctness of this discovery, and of the work of a number of men who followed Hueppe on the same lines, cannot, from the point of view of the present day, be doubted.

In 1898 Petruschky advanced our knowledge considerably by showing the enormous number of bacilli shed in the urine, and their long continuance in the urine during convalescence.

It is not a little remarkable that a complication of typhoid apparently permitting of such easy proof was only made known so recently. Before a few years ago the danger of

the spread of infection by the urine was scarcely taken into consideration.

It is now fairly well established that the bacilli appear in the urine in about one-fourth to one-third of all the cases. Their appearance in the urine is at earliest towards the end of the second week ; usually later, and most frequently not till convalescence.

The bacilli may be so few in number in the urine as to produce no evident change in its physical characters. As a rule, however, they appear so suddenly and in such numbers as to render the urine cloudy.

The number of typhoid bacilli excreted in this way is enormous. Petruschky found more than 100 million per c.c. Their appearance may coincide with the presence of some albumen and even a slight amount of blood. On the other hand, the shedding of the bacilli may be attended with very severe kidney disturbance, marked by profuse and long-continued hæmorrhage.

The bladder in the majority of cases remains unaffected, and, indeed, the bacilli may continue to be shed in enormous numbers without giving rise to any subjective discomfort.

This lightness of the affection causes the condition to be overlooked, and in this way the spread of the disease is facilitated.

As to the pathogenesis of the condition, there appears to be still much work to be done. Konjajeff, mentioned by Neufeld in the second volume of Kolle and Wassermann's *Handbuch der Pathogenen Mikro-organismen*, considers that there is a colonisation of bacteria in the kidney, and the formation of small metastatic foci as preliminary to their appearance in the urine.

AN ACCOUNT OF FIVE CASES OF PYELITIS IN ENTERIC FEVER.¹

By JOHN BROWNLEE, M.A., M.D. GLASG.,
Physician-Superintendent, Belvidere Fever Hospital.

WITH A DESCRIPTION OF THE *POST-MORTEM* APPEARANCES IN ONE CASE.

By E. S. CHAPMAN, M.D.,
Late Resident Physician, Belvidere Fever Hospital.

AMONG the rarer complications of enteric fever is that of pyelitis, though it is one which is well recognised as having an etiological relationship with that disease. The diagnosis has, however, points of difficulty, as in cases of enteric pyelitis some degree of nephritis is also present, especially at the onset, and while clinically I have been accustomed to regard this nephritis as due to a focal lesion in the kidney, which probably originates at the same time as the pyelitis, I have had up to the present moment no opportunity of verifying this inference by a *post-mortem* examination.

The cases number five in all, and the following is a brief record of their clinical course:—

CASE I.—P. Q., male, æt. 15. This patient suffered from a mild attack of enteric fever, the temperature falling to normal about the twenty-second day of illness. Had not the right ventricle become markedly dilated towards the end of the attack, and severe abdominal pain been present at intervals, there would have been nothing special about the course of the case. Towards the end of the fourth week from the commencement of the illness, however, a very severe relapse began, marked by a degree of prostration and cardiac weakness much in excess of that observed in the initial illness. Until nearly the end of this relapse the only sign of renal affection was the occasional presence of a trace of albumen in the urine. On the forty-third day of illness when the temperature had fallen almost to normal and the patient was much better, the urine passed at night was found to contain

¹ Read at a meeting of the Glasgow Medico-Chirurgical Society held on 4th May, 1906.

a considerable quantity of blood, and on the sediment being examined many blood corpuscles, some pyriform epithelial cells, and a few pus cells were found. During the next two days the urine was very deeply coloured with blood pigment, though the reaction to the guaiacum test was much less than the colour of the urine would have warranted on expectation. On the third day a large quantity of albumen was present, and many epithelial and granular tube-casts and pus cells were observed amid a great abundance of altered red blood corpuscles. From this point the amount of blood in the urine rapidly diminished, till in seven days from the first appearance it had completely vanished, though the last two or three days its presence was demonstrated microscopically as the guaiacum test failed to give a reaction. The amount of albumen decreased at the same time, and in a few days the sediment in the urine consisted of pus cells alone, to which the amount of albumen no more than corresponded. From the fifth day of the special illness onwards no tube-casts were observed, and from this time the amount of pus gradually diminished. On the twentieth and twenty-first days from the onset of symptoms there was no pus in the urine. On the twenty-second the left kidney could be quite easily palpated. A specimen of the urine passed some hours after contained a very large quantity of pus with a trace of blood, and in the evening when the abdomen was re-examined nothing could be made out in the region of the left kidney. From this point onwards, convalescence was uninterrupted, though when the patient was dismissed two months later a trace of pus was still present in the urine.

CASE II.—W. S., male, æt. 35. This case was very similar to the preceding, though the renal symptoms supervened towards the end of a primary fever and not of a relapse. The onset was associated with some degree of nephritis, much albumen being present in the urine and numerous tube-casts, as well as blood and catarrhal epithelial cells. By the third day much pus was present, epithelial and granular tube-casts were observed for five or six days, and after these had disappeared pus, associated occasionally with blood, continued to be present for more than three weeks, and when the patient was dismissed two months later the former was still present in very small quantity. Albumen was abundant in the urine during the initial nephritis, and thereafter only in proportion to the amount of pus present in the urine, except on one occasion for a few days when it was more abundant

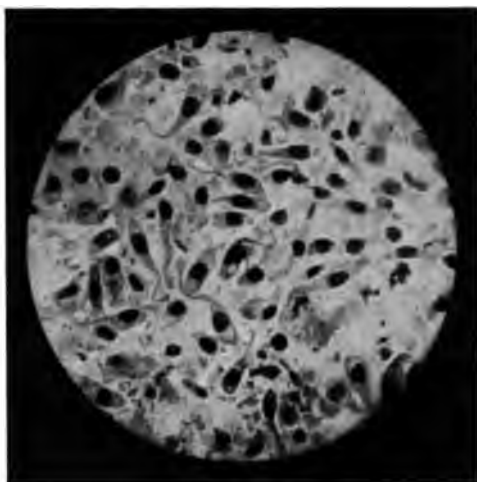


FIG. 1.

Smear preparation of the contents of the pyelon, showing tailed cells and groups of organisms.

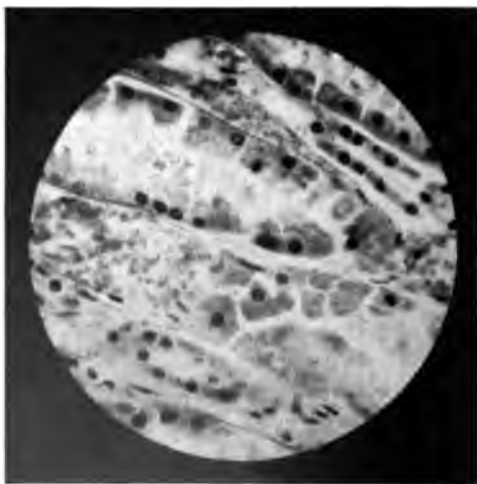


FIG. 2.

Section of kidney showing the presence of large numbers of red blood corpuscles in the epithelial tubules.

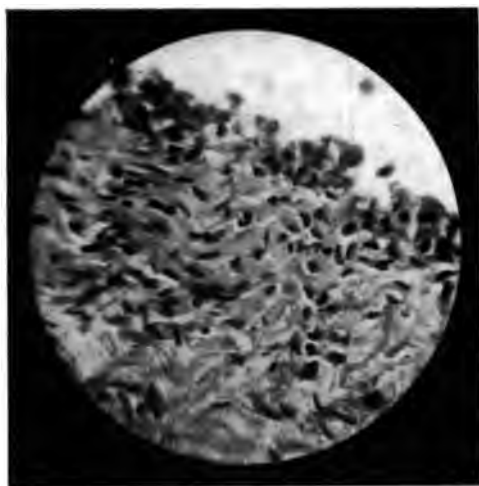


FIG. 3.

Vertical section of the pyelon showing catarrhal state of the epithelium.

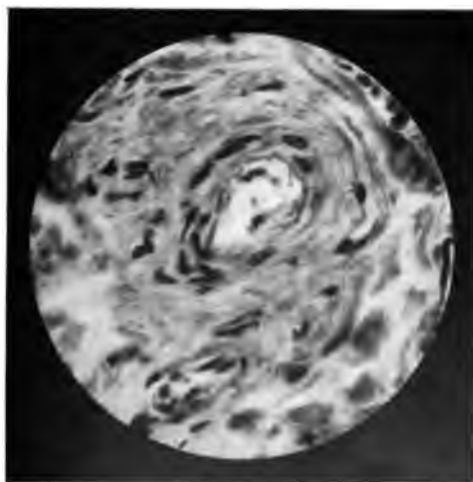


FIG. 4.

Section of an artery in the muscular layer of the pelvis of the kidney, showing thickened walls.

than the pus warranted, but careful search at this period revealed no tube-casts.

CASE III.—D. D., male, æt. 36. This patient passed through a moderately severe attack of enteric fever, complicated with true lobar pneumonia and pleurisy. The case ended by lysis during the fourth week. A few days after the temperature was normal, a specimen of the urine passed in the evening was found deeply coloured with blood. As in the previous cases the guaiacum reaction was much less than might have been expected. Albumen was present, but probably not in any greater quantity than that accounted for by the amount of blood. The sediment on examination consisted chiefly of altered red blood corpuscles, with some small amount of dark-looking pigment granules, and epithelial cells, but no tube-casts. The succeeding specimens of urine passed were much clearer, and next day the blood had disappeared. For a few days thereafter a mere trace of albumen was present, and in the mucin deposit, which collected in the base of the urine-glass, it was noted that pus cells were present. In six days from the onset of symptoms the urine was clear, convalescence was very good, and the patient was dismissed well.

CASE IV.—W. M., female, æt. 11. This patient suffered from a typical attack of enteric fever, the temperature falling to normal on the twenty-fourth day. On the twenty-eighth day of illness, when the temperature was normal, she complained of pain on micturition, and the urine was found to be of a bright red tint, and there was a deposit of pus. During the next four days the pigment was absent, and the guaiacum reaction was not obtained, though pus still continued present. On the twenty-third day of illness I first saw this patient (she was then on the third day of a relapse), the urine was coloured with blood, the sediment contained many altered red blood cells, many pus cells, mixed with small shreddy bright red masses. On the thirty-sixth day of the fever blood was absent from the urine. The region of the left kidney was on this day tender to bimanual palpation. From this time the patient ran the course of an ordinary relapse, lasting till the forty-first day of illness, and had varying amounts of pus in her urine, but only blood on one occasion. The amount of pus gradually diminished, and it was completely absent on the fifty-second day of illness. Albuminuria was present throughout, but not out of proportion to the amount of blood and pus. Convalescence was very good.

CASE V.—N. L., male, æt. 22. This patient was of Italian nationality, and, according to the history, sickened only eight days prior to admission. From the fact, however, that certain portions of the Peyer's patches in the ileum near to the ileo-cæcal valve were found *post-mortem* to lack foveation and to have a smooth surface, a condition found in healed enteric ulcers, it is probable that the patient was admitted during a severe relapse following an ambulatory attack of the disease. On admission the patient was very ill, and though the pulse was not very rapid it was of very poor quality. Tympanitis and a certain amount of rigidity of the abdomen were present. The spleen was much enlarged, and rose spots were noted. Although the temperature began to subside on the eighteenth day of illness, the pulse became gradually weaker, and the patient died on the twenty-second day of illness, purely of cardiac failure. Two days before death the urine was found to contain blood and to present the same colour before noted in cases of pyelitis. In this instance, however, the guaiacum reaction for blood was very marked. The sediment in the urine consisted of red blood cells and tailed epithelial cells, few pus cells being observed, and no tube-casts. On the day of death the characters were similar. The diagnosis of pyelitis was made and verified *post-mortem*.

A general review of the preceding cases shows that the symptoms which have been uniformly present have related solely to the urinary condition; the onset has, in the five cases recorded, developed in one at the end of a primary attack of enteric fever (Case V), in one in the apyretic interval between the end of the primary fever and the beginning of a relapse (Case IV), and in the remaining two shortly after the temperature became normal. In none was it ushered in by any special symptoms such as rigor, alteration of pulse or temperature, or special feeling of discomfort. In all cases the first sign to be noted was the altered colour of the urine, which in place of being amber-coloured was of a red hue, of greater or lesser intensity, such as is associated with the presence of blood. The sediment at this stage consisted largely of altered blood cells and of catarrhal epithelial cells such as are found when the epithelial structures of the urinary tract are inflamed. This, in two cases, was succeeded on the third day by the presence of epithelial and granular casts, indicating inflammation of the kidney. In both instances where these casts were present there was a very considerable amount of albumen in the urine, much out of proportion to that which the presence of blood would

account for. In both these cases it is to be noted that the symptoms of nephritis disappeared in five or six days. The symptoms, then, which remain belonging to pyelitis proper seem to be the presence of blood in the urine, with a certain amount of tailed epithelium, which rapidly, in two or three days, is replaced by the ordinary pus cells and the protracted appearance of the latter in the urine. In two cases the origin of this pus was more or less identified with the pelvis of the kidney by the result of palpation, in Case IV by tenderness in the region of the left kidney; in another (Case I) the absence of pus in the urine for two days was found associated with a definite enlargement of the left kidney which could no longer be perceived after the passing of a specimen of urine largely consisting of pus. One interesting point in connection with the presence of blood in the urine in pyelitis is the difficulty with which the characteristic reaction with guaiacum is frequently obtained. Unfortunately, spectroscopic examinations were not made in any of the cases. The blood always occurs with the onset of the illness, but may continue to appear in small quantities and at irregular intervals for some time after the condition has become established. The light thrown on the clinical symptoms by the pathological description by Dr. Chapman is considerable. The focal lesion in the kidney explains the temporary nephritis observed in two instances as well as the presence of a certain amount of blood in the urine, while the degree of congestion and apparent fragility of the blood-vessels of the pelvis which are subjacent to the epithelial surface is such as cannot but cause marked hæmorrhage, resulting in the pigmentation of the urine referred to.

The duration of the condition is seen to be very variable; in one case the whole course occupied no more than six days, in another it lasted twenty-two days, while in other two pus was still present in the urine in minute quantity about three months after the onset.

Post-mortem appearances in a case of enteric pyelitis, by E. S. Chapman, M.D.—The occurrence of pyelitis as a complication in enteric fever is of some rarity. The literature upon the subject is scanty, and practically no references have been made to the pathological alterations found in the pylon. A description, therefore, of the pathological changes found in the pelvis of the kidney in a case of this condition may be of some interest.

The following is an extract from the report made at the

autopsy of N. L., who died at Belvidere Hospital on 29th August, 1905, during an attack of enteric fever. During the illness there had been symptoms pointing to the presence of pyelitis. The symptoms have already been fully discussed by Dr. Brownlee.

"The body was that of a well-nourished man. The heart was enveloped in a considerable amount of fatty tissue. The heart muscle showed much albuminoid degeneration. The valvular structures were normal. The pericardium contained a normal amount of serous fluid and showed no signs of inflammation. The bases of both lungs were intensely congested, but no other pulmonary lesion was present. There was no evidence of peritonitis. The liver was fatty, and the gall-bladder was distended and contained a considerable quantity of bile, in which floated numerous flocculæ. The walls of the gall-bladder were congested, but no ulceration was visible. Cultures made by Dr. R. M. Buchanan from the bile showed a pure growth of the bacillus typhosus. The spleen was congested, and a section showed many small hæmorrhages.

"The lower part of the small intestine was much congested and the mucous surface exhibited numerous solitary ulcers. The Peyer's patches situated at some distance from the ileo-cæcal valve were deeply ulcerated, while those in the immediate neighbourhood of the valve showed little of the characteristic foveation, a condition suggestive of healing of the ulcers in the lowest portion of the small bowel. The mesenteric glands were much swollen and congested.

"The left kidney weighed $4\frac{1}{2}$ oz. The capsule was non-adherent. On section it showed a slight degree of fatty degeneration and some congestion of the pyramids. The pyelon was normal, but the ureter appeared to be somewhat larger than normal. The right kidney weighed $3\frac{1}{2}$ oz. The capsule was non-adherent. On section it showed slight fatty change and some congestion both of the cortex and pyramids. Extending up from one pyramid into the boundary zone there was a localised area, measuring half an inch in length by an eighth of an inch in breadth, which was paler than the neighbouring tissue, and which was surrounded by a thin zone of marked hyperæmia. The pyelon of this kidney was seen to be markedly congested, and the pelvis contained some thin, slightly blood-stained opaque fluid. The fluid was examined bacteriologically by Dr. R. M. Buchanan, and was found to give an almost pure culture of the bacillus typhosus. Microscopically the cells in the fluid consisted almost entirely of

the tail-shaped cubical epithelium normally found lining the pelvis together with a few blood corpuscles. Only very rarely were any pus cells seen. The right ureter was of normal size, and did not show any marked congestion. The urinary bladder was normal in appearance, and contained a large quantity of deeply blood-stained urine.

“Portions of the kidney and pyelon tissue were embedded in paraffin after having been fixed and hardened in alcohol, Zenker's fluid, or formaldehyde. The sections were in the majority of instances stained with Ehrlich's acid hæmatoxylin and eosin.

“The chief changes found in the kidney were an extreme degree of congestion, together with some hæmorrhages and degeneration of the tubular epithelium. The intertubular capillaries as well as the larger vessels were seen to be filled with blood cells, and in many places the smaller vessels had ruptured, thus giving rise to small interstitial hæmorrhages, while in some instances the basement membranes of the tubules had been destroyed with consequent hæmorrhage into the tubules. This change was most marked in the localised lesion above referred to, where it was found that the tubular structures were much compressed and partially destroyed by the congestion and hæmorrhages. No evidence of infarction was discovered in this area. The cells in the convoluted tubules exhibited a marked degree of granular degeneration, and in many instances had become separated from the basement membrane. Occasionally there was found necrosis of these cells, and frequently the convoluted tubules were seen to be filled with blood cells and granular *débris*, the latter formed from the disintegration of the tubular epithelium. The cells in the loops of Henle, and those of the functional and collecting tubules also, showed granular degeneration, and in the latter structures hyaline and more rarely granular tube-casts were visible. There was no evidence of any proliferation of the tubular epithelium. The capillaries of the glomeruli were distended with blood cells, and in a few cases there was some hyaline thickening afferent vessels, but apart from these changes there were no gross alterations seen in the Malpighian corpuscles.

“Normally the mucous membrane of the pelvis of the kidney is partly composed of stratified epithelium consisting of four layers. The most superficial cells are cubical in shape. These fit upon the rounded bends of the second layer of cells, which are pear-shaped, and these again are superimposed upon a double layer of tail-shaped epithelium.

Beneath this epithelium lining the mucous membrane is composed of areolar tissue which, towards the muscular coat, has loose and open structure. There is, however, no marked distinction between mucous and submucous layers.

"The most marked pathological change found in this pyelon was the destruction of the epithelial cells. The degree of the destruction was not of the same intensity throughout the sections. Over the greater part of the pelvic surface the superficial cells had become separated, only a few of the deeper or tail-shaped cells remaining, while in the remaining areas the degeneration of the epithelium was complete, and the connective tissue of the mucous membrane was found to be directly exposed. In areas showing the partial degeneration some of the remaining tail-shaped epithelial cells were found to have already assumed a somewhat flattened appearance. In a few limited areas there was seen some proliferation of the cells of the deeper layers. These newly-formed cells were tail-shaped and contained one nucleus. No mitotic figures were present. Those situated most superficially were completely separated from the mucous membrane, and were seen, together with many red blood corpuscles, to be lying free upon the surface of the pyelon. All the vessels of the mucous membrane were much congested, and some of the smaller ones had ruptured, thus giving rise to small hæmorrhages. These hæmorrhages were most frequent around the vessels situated immediately below the epithelial covering. In some instances it would appear that these sub-epithelial hæmorrhages were responsible for the degeneration of the epithelium, and occasionally the tissue was so cut as to show the rupture of a vessel situated at the extreme edge of the section, which thus caused a hæmorrhage upon the surface of the pyelon. Rarely was there found any infiltration of the mucous membrane, and when present it was situated in the superficial layers. The infiltrating cells consisted of lymphocytes, and only very occasionally were any polymorphonucleated leucocytes seen.

"The vessels of the muscular layer were congested, and some of the larger ones were thickened. This thickening appeared to be due to an increase in the medial and adventitial coats. There was no cellular infiltration in this region, and the muscular fibres were found to be normal."

Report by Dr. R. M. Buchanan.—On 30th August Dr. Brownlee submitted cultures from the pyelon of the right kidney and from the gall-bladder of N. L., made at the time

of *post-mortem* (thirty hours after death). It was stated by Dr. Brownlee that the case presented the characteristic lesions of enteric fever in the ileum, viz., ulceration with healing, suggesting an illness of about five weeks' duration. The pyelon of the right kidney was congested in patches, and contained reddish purulent fluid, which on microscopical examination consisted of tailed epithelium, red blood corpuscles, and very few leucocytes. Sparse groups of a bacillus were seen. The gall-bladder was distended, slightly congested, and contained about 4 oz. of fluid showing very numerous flocculi. The bladder appeared quite normal.

The cultures received were growths on sloped agar, the one from the kidney being mixed, the one from the gall-bladder being pure.

An organism showing the characteristic cultural reactions of bacillus typhosus was obtained from each tube, and was confirmed by agglutination tests performed with blood obtained from typhoid cases.

CASE OF SUPPLEMENTARY LOBE OF THE LIVER CAUSING SYMPTOMS OF PYLORIC OBSTRUCTION.¹

By JAMES A. ADAMS, M.D., F.F.P.S.G.,
Surgeon, Glasgow Royal Infirmary.

THE occurrence of supplementary lobes of the liver is sufficiently rare to render them noteworthy, and the presence of such growths of considerable size and producing symptoms necessitating operative interference is so infrequent as to call for more than a passing attention.

Not the least interesting feature of the case about to be reported is the occurrence of symptoms which pointed to obstruction of the pylorus, and which, as will appear in the report, suggested that that obstruction was of a malignant type. The operation was undertaken with the view of relieving that obstruction, and it may be said here that the man's emaciation and prostration were so marked that the intention was directed more to a palliative procedure rather than to radical measures. There was no thought of supplementary or aberrant lobes of the liver, and, indeed, on reviewing

¹ Read at a meeting of the Glasgow Pathological and Clinical Society held on 12th March, 1906.

the case in the light of subsequent investigations into the literature of the subject, it is difficult to know how a differential diagnosis could have been made prior to operation. It is none the less satisfactory to be able to record that when the true nature of the case was recognised, on opening the abdomen, the removal of the tumour was effected without much difficulty and that the result has been an absolute cessation of most of the symptoms.

In the first place it will be better to give a *résumé* of the history of the present case before proceeding to discuss the subject in detail.

J. T., æt. 28 years, a joiner by occupation, was admitted to the surgical wards on 3rd November, 1904. His *family history* reveals no item of importance, and his *personal history* is one of good health until the commencement of this illness.

Present ailment.—Eight years ago the patient first felt pain in his stomach, and this was followed by a vomiting of blood. He was relieved after the vomiting and remained well for about two years. After the lapse of that time, however, he had a return of the sickness, and he often vomited his food. At this time, too, he had another attack of severe pain, followed by a vomiting of blood. The colour of the blood was "dark brown and congealed." About three years ago (1901) he was admitted to the infirmary and treated medically, after which he again had relief for two years. An extract from the record of that residence in the infirmary shows that the upper border of the liver was at the upper border of the sixth rib, its depth in the nipple line was $3\frac{1}{2}$ inches, and in the mesial line 2 inches. To the right of the middle line, midway between the xiphoid cartilage and the umbilicus there was a thickening, but no definite tumour. There was no pain on palpation, succussion was unduly marked, and the patient was habitually constipated.

After leaving the hospital at that time he always had a dull pain in the stomach, and, more or less all the time, he vomited his food. Fourteen weeks ago and nine weeks ago he vomited blood. The character of the blood was similar to that previously noted. He was again admitted to the medical side of the hospital in 1904, when it was noted that the pain came on one to two hours after food, and that it lasted from two to three hours. The pain was relieved by lying down, by gentle pressure on the epigastrium, and after vomiting.

On his transference to the surgical side, it was noted that the patient was thin and pale, his tongue being rather white.

He said that he had lost about a stone in weight during the previous three months. The liver seemed to be a little less than the normal size. Succussion was readily observed two hours after food. The stomach was dilated, the pyloric end was about 2 inches to the right of the middle line, the lower border was at the level of the umbilicus, and the right margin was $3\frac{1}{2}$ inches from the middle line. The patient complained of a dull pain over the greater part of the epigastric region, but most markedly over a point midway between the xiphoid and the umbilicus. The patient also complained of another distinct pain below the ribs, about 3 inches to the left of the middle line. That pain was described as being distinct from the epigastric pain, being more of a shooting and stabbing character.

Operation.—On 17th November, 1904, the abdomen was opened by a vertical incision in the middle line, above the umbilicus. A pedunculated lobe of the liver was found in such a position as to press on the pyloric end of the stomach. The lobule, which measured 3 inches by 2 inches, was covered by peritoneum which was continuous with the broad, flat pedicle, the attachment of the latter being on the under surface of the liver to the left of the gall-bladder. The pedicle of the abnormal lobe was ligatured prior to removal. Examination of the stomach revealed no thickening or tumour, but the blood-vessels on its surface were markedly varicose. The stomach was not opened. The abdominal wall was sutured in two layers, and the wound was dressed with cellulose pads.

On the following day the patient vomited a considerable quantity of blood, of dark colour and with some red clots. This bleeding must have been subsequent to the operation, for the stomach had been washed out before operation. The vomiting continued for twenty-four hours, the vomited matter being at times clear and watery, at other times greenish in colour, with black particles. Thereafter no vomiting occurred. The bowels moved in response to the administration of calomel and salines. The rest of the after-history was uneventful.

On the eighth day he had greatly improved, and he was dismissed in the fourth week well, having had no discomfort, pain, or sickness.

Six months later he reported himself and said that he had been working for eight weeks, and that he had had neither pain nor sickness for four months. Weight, 7 st. 8 lb. At the present time, nearly a year after the operation, he weighs 8 st.

Referring to the symptoms previous to the operation, the

patient says he is now free from sickness or vomiting after food, that there has been no hæmatemesis, and that there is now no constipation. He complains of a pain in his back within an area bounded by the tenth ribs superiorly, the twelfth ribs inferiorly, and laterally by a line drawn from the posterior border of the axilla on both sides. He states that he is quite free from pain, except when he starts to work.

A careful examination fails to reveal any disease of his vertebræ, and there are no signs of disease of the spinal cord.

The stomach is still somewhat enlarged, and succussion may be obtained at times. The bases of both lungs are healthy, and there is no pleural friction or hepatic friction.

Remarks.—Most of the literature of this subject is based on *post-mortem* discoveries of the abnormalities, and though suggestions are made by some authors in the matter of differential diagnosis, it is none the less true that all of the cases reported as being found during life were discovered during operations for other purposes, or where there was a doubtful diagnosis in which that adventitious lobe of the liver was not considered.

The case reported by Langenbuch¹ is especially interesting, since it is claimed as the first case in which a large piece of the human liver has been excised. The patient, a woman, æt. 30 years, had a large abdominal tumour, about the size of the fist, which caused pain both on standing and when in the recumbent posture, though it was relieved when she lay on her face. The tumour was situated in the upper part of the abdomen, exactly in the middle line of the epigastrium. It was smooth, elastic, and non-fluctuant; the percussion dulness was continuous with that of the liver, and both moved with respiration.

Langenbuch, up to the moment of opening the abdomen, hesitated between the diagnosis of a tumour of the omentum, of the kidney, of the pancreas, of one of the lymph glands, &c., and then decided to make an exploratory incision, with a view to removing the tumour if possible. He found a large constricted lobe of the liver, which he ligatured at the constriction and removed. The after-history was uneventful, except for the necessity of re-opening the abdomen to check some hæmorrhage. The weight of the part removed was 120 grm. (12½ oz.).

This case differs from the one just described in that a tumour was palpable before operation. In the case reported

¹ *Berliner klin. Woch.*, 16th January, 1888, No. 3.

by Terrier¹ there was also an evident tumour situated close to the umbilicus and extending to the false ribs on the right side. The upper limit of the tumour could not be determined with exactitude, and it was diagnosed as a floating kidney. On section of the abdomen, it was found to be a well developed lobe of the liver. It was somewhat unhealthy in appearance, and hard, as though sclerosed, but without any irregularities of its surface. As there were gall-stones in the gall-bladder, the operation of cholecystotomy was performed, and it was noted three months later that there were no attacks of severe pain. The feeling of weight in the tumour was still a feature, as was also the continued constipation. The dyspepsia had disappeared. Terrier, in discussing the treatment of such a condition, suggests that the proper course should be suture of the mobile tumour to the abdominal wall, as had been done by Billroth² and Techerning,³ and refers to Langenbuch as "still more audacious" in removing the tumour (in the case above mentioned).

Another case in which movable kidney was diagnosed, and an accessory lobe of the liver discovered on opening the abdomen, is recorded by Pichevin.⁴ The mobile lobe was 20 cm. (8 inches) long and 10 cm. (4 inches) in circumference; it was connected with the inferior border of the liver, and reached to the iliac fossa. The abdomen was closed without anything being done to the liver tumour.

Rolleston, in his book on *Diseases of the Liver*, narrates Martin's case, where a woman of 36 had a tumour in the abdomen for twelve years, which had latterly grown larger, becoming also tender and painful. An oval tumour, about the size of a six months' pregnancy, filled the right half of the abdomen. It was tense and very mobile, dull on percussion, and separated from the liver by "band of resonance." It was thought to be an unusually mobile kidney. Laparotomy revealed a pedunculated accessory lobe of the liver, bearing the gall-bladder. It was successfully removed and its weight was 3½ lb.

Bastianelli⁵ is also quoted in a case which was diagnosed as a displaced cancerous kidney, in which a laparotomy revealed a floating lobe of the liver with the kidney attached to its under surface. This piece, weighing 500 grammes (18·75 oz.),

¹ *Progrès Médical*, 1888, vol. ii, p. 121.

² *Wiener med. Wochens.*, 1886, No. 14.

³ *Centralblatt f. Chirurg.*, 1888, p. 146.

⁴ *Progrès Médical*, 1888, vol. ii, p. 253.

⁵ *Loc. cit.*

was successfully removed. On section there were gummata found in this portion, though no gummata were discovered in the other parts of the liver.

Rolleston, in the same book (p. 8), remarks that "a tongue-like lobe arising from the left lobe of the liver would tend to exert pressure on the pylorus, duodenum, pancreas, and nerve plexuses, which are supported behind by the spine; while on the right side no important viscus would suffer." Such, in fact, were the effects of the tumour in the present case, *i.e.*, dilatation of the stomach, sickness, vomiting, and pain, as well as the marked varicosity of the vessels in the stomach wall, and the occurrence of many attacks of hæmatemesis.

All authors insist on the difficulties of diagnosis in cases of deformities of the liver. In the cases above cited, the difficulties were apparent even in the presence of a palpable tumour. In this case there was no such evidence of tumour, and the occurrence of symptoms of pyloric obstruction, together with the progressive emaciation, pain, and hæmatemesis, were all suggestive of a malignant growth.

In the matter of treatment, the accessory lobe was in this case removed, with good result. It is interesting to find that Rolleston¹ says—"In cases where the tongue-like lobe is diagnosed, treatment is only necessary when pain or discomfort is present. If there is any underlying cholecystitis or cholelithiasis, treatment should be directed to these conditions. In seven cases, when the morbid conditions of the gall-bladder were treated, the tongue-like lobe disappeared."²

In the present case there were no gall-stones in the gall-bladder or passages, nor evidence of inflammatory trouble, and the lobule was removed as the easiest and most radical means of treating the condition.

Consideration of the apparently less heroic measures, such as suturing of the movable tumour to the abdominal parietes, as performed by Billroth and Tcherning (*vide supra*), does not impress one with any marked reason for their preference, for, in the first place, these accessory lobes are not necessary to the bodily economy, being for the most part insignificant in size as compared with the liver itself; and, secondly, the complete removal of such growths when pedunculated is by no means difficult to a surgeon accustomed to abdominal operations, nor does it seem to have any untoward effect on the patient. The case would, of course, be different if the tumour were of such large size as to represent any considerable

¹ *Loc. cit.*, p. 14.

² Terrier and Auvray, *Rev. de Chirurgie*, 1897.

bulk of liver tissue at the expense of the normal gland, as, for example, where one of the lobes of the liver had become separated and movable; or, again, if the accessory lobe were not pedunculated, in which case its removal would necessitate an incision of liver tissue, enhancing the difficulty and danger of the operation. In these cases the suture of the tumour to the abdominal wall seems the most reasonable procedure.

The pathological significance of aberrant or accessory lobes of the liver is a matter of considerable interest. The cases cited by Rolleston, already quoted, where removal of a diseased condition of the gall-bladder resulted in the disappearance of the tongue-like projections, seem to show that they are the result of a physiological or pathological process.

Mackenzie reported "A Case of Malformation of the Liver,"¹ in which he says that the normal configuration was, roughly speaking, reversed, and stated that the alteration of form depended on two main factors—"(1) the left lobe exists only in an atrophied form or rudimentary form; (2) an extra lobe, a large and somewhat pear-shaped mass, equal in size to about a quarter of the whole organ, is wedged in just to the right of the gall-bladder." He suggested that the lobulation was a reversion to a type not infrequently met with among the lower animals.

J. Coats² refers to these growths as "one form of adenoma which is sometimes designated 'nodular hyperplasia,'" but he gives no opinion as to their origin.

A. Thomson, M.B., recording a case in the *Journal of Anatomy and Physiology* (1884-85, vol. xix, pp. 303, 306), is inclined to think that the abnormality consists rather in the suppression of the development of a part of the right lobe than in the addition of a supplementary lobe of gland substance.

Another theory as to the occurrence of these supplementary lobules is advanced by G. Kuss in an article on "Aberrant Lobe of the Hepatic Gland in Man," in the *Bull. et Mém. de la Société Anat.* (6^{me} serie, vol. i, p. 1062). After describing a case, and remarking that the supplementary lobe presented the same pathological appearance as the liver, viz., congestion and cellular hyperplasia, he goes on to say—"We consider this supplementary lobe of the hepatic gland a simple appurtenance of the right lobe of the liver, to which it is anatomically and physiologically attached. Perhaps, nevertheless, we may consider that there is a relation between this abnormal formation and that which applies to vasa aberrantia—if one is willing

¹ *Trans. Path. Society*, 1894-95, vol. xlv, pp. 69, 71.

² *Manual of Pathology*, 1883, p. 564.

to accept the opinion that these vasa aberrantia of the true biliary canals have been made naked and have become superficial in consequence of the atrophy of the hepatic lobules in the depth of which they were primitively plunged; we should then have, by a process still unexplained, an abnormal persistence and hypertrophy, in place of normal atrophy and disappearance, of the hepatic lobules bordering on a vas aberrans, or of several vasa aberrantia, and the organisation of these peri-vasian lobules into a small projecting supplementary lobe. But this is only a hypothesis." In support of that hypothesis he mentions that these occurrences are confined to the postero-anterior aspect of the liver, and that persistence of and increased growth round vasa aberrantia would most readily occur in the region of the right lobe, in contact with the soft non-resistant colon, than in other parts where denser structures are in contact, such as the diaphragm, stomach, kidney, and suprarenal capsule.

Munchotte and Kuss¹ do not consider that these lobes can be the result of a cellular hyperplasia, but rather regard them as the result of abnormal anatomy, and state that they may be regarded as teratomata. They believe that the study of comparative anatomy does not throw any light on the lobulation of the liver in man. They agree with the peri-vasian theory of Kuss above mentioned.

It is impossible to advance an opinion as to the etiology of aberrant lobes from one case, and particularly where the patient is still alive, since no minute examination of the rest of the liver is possible. It seems reasonable to conclude, however, from the information at our disposal, that these supernumerary lobes are congenital malformations, which may come under the classification of teratoma, and which are sometimes found to increase in size as a result of pathological changes in the liver or its ducts, or even independent of such diseased conditions. The frequency with which these lobes are found at *post-mortem* examinations, without having given rise to symptoms during life, and their occurrence in different forms—sessile and pedunculated, or even attached by a kind of fibrous band containing no hepatic tissue—seems to support that view.

Since these notes were written, the following account of another operation for the removal of an aberrant lobe, by C. B. Lockwood,² has come under my notice. The patient was a young unmarried woman, who complained of pain in the

¹ *Bull. et Mém. Sociét. Anat. de Paris*, 1900, vol. lxxv, pp. 217, 227.

² *Lancet*, 1903, vol. ii, p. 223.

right side at M'Burney's point. A tumour was felt outside the middle third of the right linea semilunaris. It moved with respiration, was smooth and painless. Diagnosis—displaced and movable kidney. A belt and horse-shoe pad were applied, without relief. The pain, flatulence, and constipation continued, and, on reconsideration, appendicitis was diagnosed. The appendix was removed, and, at the time of operation, the tumour was felt at the right border of the rectus muscle, and discovered to be attached to the right lobe of the liver by a thick neck. Six months later it was removed. The gall-bladder was healthy. The author cites Sir Frederick Treves as disapproving of the removal of such growths, since they are generally found to coincide with affections of the gall-bladder or ducts, and directing treatment to these conditions. Lockwood agrees with that dictum, but points out that in his case there was no disease of the gall-bladder, and that he was therefore justified in removing the aberrant lobe.

In concluding these notes, I desire to express my indebtedness to Dr. J. Wainman Findlay for his painstaking work in the literature of the subject.

TYPHOID SPINE.

By ANDREW LOVE, M.D.,

Senior Resident Assistant Physician, Belvidere Fever Hospital, Glasgow.

THE complication to which the name of typhoid spine has been given is of rare occurrence in enteric fever, and it is only within recent years that attention has been drawn to the condition. There is no reference to it in Murchison's work, or in the older text-books or monographs on typhoid fever—English, French, or German.

The general character of the complication is indicated in the small paragraph devoted to it in Osler's text-book on medicine—"There is a remarkable disorder of convalescence to which Gibney has given this name (typhoid spine). The patient has usually been up and about, and may have had a slight jar or shock, after which he complains of great pain in the back, and of pain on moving the legs. The condition may persist for weeks without fever or any sign of Pott's disease, spondylitis,

or neuritis, but there are usually marked nervous or hysterical symptoms. The outlook is good. It is not known upon what this condition depends. It seems to be a neurosis rather than a perispondylitis. The muscles may be the seat of the degeneration already referred to, but it rarely causes any symptoms. Hæmorrhage occasionally occurs into the muscles, and later, in protracted cases, abscesses may develop, sometimes in or between the abdominal muscles."

Clifford Allbutt, in his *System of Medicine*, in referring to this condition, merely quotes Osler.

Cases are recorded by Osler, Gibney, and Pepper. In Osler's six cases, which are fully described in vols. iv and v of the *Johns Hopkins Hospital Reports*, the pain in the back occurred during convalescence and after slight injury. In two of his cases it was situated in the cervical region, and in the others in the lumbar region. Recovery was complete in all the cases.

Dr. Gibney, of New York, described four cases of this sequel of enteric fever, which he called "typhoid spine." Gibney regarded this condition as a perispondylitis, "meaning an acute inflammation of the periosteum and the fibrous structures which hold the spinal column together," and he stated that his reason for the use of the term was "the production of acute pain on the slightest movement whether lateral or forward, and the absence of any marked febrile disturbance or neuralgia." All Gibney's cases were attacked by pain in the back during convalescence, and in each instance there was a history of some twist or injury immediately preceding the onset. In none was there any evidence of spinal disease, and all eventually made a perfect recovery.

One of his four cases was regarded for a time as psoas abscess. Fever was absent, except in one case.

Dr. Pepper remarks, in his article on typhoid fever in the *American Text-book of Medicine*, that he has observed in a series of cases "obstinate periosteitis of the sternum or of the crests of the ilia, or in two instances, judging from the location of the pain and from the effect of movement of the trunk, of the front of the spinal column.

Quinke reported two cases, and Pallard one, all of which recovered.

In recording the following two cases of "typhoid spine," it is intended not so much to discuss the pathology of this complication, as to indicate the clinical symptoms and signs associated with the condition.

CASE I.—J. M., æt. 26, was admitted to hospital on 23rd October, 1901. He had been ill for nine days previous to admission, and on his entrance into the ward presented all the appearances of a sharp attack of enteric fever, with abdominal distension and an abundant crop of rose spots. His temperature was 102° F.; pulse, 106; and respirations, 26 per minute.

On 18th November, the thirty-sixth day of illness, the temperature became normal, remaining so during convalescence. On 1st December, the forty-ninth day of illness, the patient complained of acute pain in the lumbar region of the back. This, he said, was "made worse by moving or turning." The pain was felt shooting down the right leg and into the right iliac fossa. There was no sign of inflammatory mischief. There was no special tenderness on pressure over the spine at the seat of pain, or in the surrounding tissues. Sensation was normal, but the knee reflexes were markedly exaggerated, and ankle-clonus was present. Palpation in the right iliac fossa was attended with some discomfort, and the possibility of a psoas abscess was contemplated. On this understanding, the patient was transferred on 2nd February, 1902, to the Royal Infirmary for operation. The signs were somewhat vague, and operation was delayed. The condition persisted until the end of February, 1902, when the pain subsided. Shortly afterwards the patient was dismissed well.

CASE II.—A. S., æt. 27, was admitted to hospital on 7th October, 1903. He had been ill for six days, and on admission looked very sharply ill indeed. His temperature was 106.2° F.; pulse-rate, 110; and respirations, 30 per minute. The patient had a long and severe illness, his temperature fluctuating between 101° F. and 103° F. until 17th November—thirty-eighth day of illness—when it became normal. On 17th November, ten days after the temperature became normal, he complained of severe pain in the lumbar region of the back, and said he had "given his back a twist." Movement of any kind appeared to cause him exquisite pain, and it was with difficulty that he turned on his face in order to allow examination of the spine. There were no indications of any inflammatory change, and manipulation of the spine and surrounding tissues was not attended by any tenderness or pain. The knee-jerks were exaggerated, and ankle-clonus was present. Sensation was normal. There was no fever. The pain persisted for about ten weeks, but even on 2nd February, 1904, there was still a sense of uneasiness when moving about. At that time

the knee-jerks were slightly exaggerated, but there was no clonus. Patient was not dismissed until 18th June, 1904, and even at that late date there was still some difficulty in walking, but all the pain and uneasiness in the lumbar region had disappeared.

The similarity of the two cases is somewhat striking. Both were very ill, and the pyrexia ran a prolonged course—thirty-six days in the one case and thirty-eight days in the other. The attack of pain in the back occurred in both cases about the end of the second week of convalescence, it was situated in the same region (lumbar), and it was of exactly the same character. In both cases the pain was aggravated by movement, but in no way increased by pressure or manipulation of the spine or surrounding tissues. In one case (Case II) the attack was ushered in, according to the patient, by a "twist" which he had given himself, but in the other case (Case I) it could not be attributed to any injury.

The knee-jerks were markedly increased, and ankle-clonus was present in both instances, while sensation was perfectly normal.

There was no rise of temperature either at the onset of the pain or during its continuance, and, notwithstanding the discomfort in the back, both patients ate well and put on weight.

In both cases the duration of the pain was long—from two to three months—and even after the pain had disappeared there was some uneasiness on movement and difficulty in walking.

Perfect recovery occurred in both instances, and some months after dismissal from hospital both patients reported themselves "as well as they had ever been."

An explanation of the symptoms in these cases is by no means easy. Joint and periosteal troubles are not rare sequelæ of typhoid fever, but the symptoms do not usually develop at so long a time after convalescence has been well established. Periostitis, too, proceeds, as a rule, but not necessarily, to suppuration, and in any case periosteal thickening does not commonly last for several weeks or months without suppuration. It is also difficult to conceive of attacks of pain such as described, lasting for months and due to a simple perispondylitis, and not passing on to suppuration. Nor is the condition to be ascribed merely to neurasthenia, as both patients were full-bodied, stable-minded men who had never shown any manifestation of hysteria.

It is suggested by a consideration of the two cases reported here that there exists in cases of this kind an inflammatory condition of the nerve sheaths in the vertebral canal through which the nerves make their exit, the situation of the pain being determined, it may be, by some slight injury. This explanation agrees with the manifestations exhibited, and accounts for the acute pain attendant on turning or movement of any kind. It also explains what cannot be accounted for by considering the condition as a neuritis or perispondylitis, namely, the exaggeration of the knee-jerks and the presence of ankle-clonus.

The explanation is, of course, conjectural, and as all cases end in recovery, the probability is that it will remain so.

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- Quincke, *Mitth. aus den Grenzgeb. der Med. und der Chir.*, 1898, vol. iv, p. 244.
Osler, *Johns Hopkins Hospital Reports*, vols. iv and v.
Gibney, *Orth. Trans.*, vols. ii and iv.
Pallard, *Rev. Méd. de la Suisse Rom.*, 20th August, 1892 (extract, *British Medical Journal*, 1902, vol. ii, p. 53).

Obituary.

JOHN ANDERSON JAMIESON, M.D., J.P., BRODICK.

It is striking to reflect that Dr. Jamieson, who passed away on 24th October last, in his eighty-ninth year, was born a year before the late Queen Victoria. In those early days, and for many years afterwards, the communication between Arran and the mainland was primitive to a degree in comparison with that which exists now; and Dr. Jamieson could relate circumstances which illustrated in a remarkable manner the changes brought about by the modern steamboat.

Though born in Arran, he did not always practise there. After graduating M.D. at Glasgow University in 1840, he lived for a time in America as medical officer to the workmen engaged in the construction of the Welland Canal, between Lakes Ontario and Erie. Fever was very rife at these works. He afterwards practised at Helensburgh for a time.

When Dr. Jamieson settled in Arran in 1854, he was the

only medical practitioner in the island, and it will readily be understood that some of his professional expeditions extended over more than one day. During the last few years he was not engaged in active practice, but though his bodily strength suffered from the natural decline of advanced life, his cheerfulness and his thoughtfulness for others continued, and those who enjoyed his hospitality are not likely to forget how highly that virtue was developed in him.

Dr. Jamieson was made a Justice of the Peace some years ago, and, later on, an Honorary Sheriff-substitute. In the absence of the Sheriff, he occasionally dispensed justice instead of physic.

He is survived by his widow, two sons, and a daughter. Dr. Robert Jamieson has long been in charge of the practice at Brodick, while the younger son is an artist in London.

JOHN ARCHIBALD CAMPBELL, M.D., C.M. GLASG., F.R.S.E.

DR. CAMPBELL, who died at his residence in Jersey, on 25th October, had been living in retirement for several years. He belonged to Argyllshire, and studied at Glasgow University, where he graduated M.D. and C.M. in 1865. He was for a time assistant in the Durham County Asylum, and in 1867 became assistant medical superintendent of the Cumberland and Westmorland Asylum under Dr. Clouston. When Dr. Clouston went to Edinburgh in 1873, Dr. Campbell was appointed to succeed him, and he held this office for twenty-five years. He was President of the Psychological Section of the British Medical Association at the Carlisle meeting in 1896. Dr. Campbell was the author of numerous contributions to different medical journals, chiefly on subjects related to insanity.

ALEXANDER MACDONALD, L.R.C.P.E., &c.

WE regret to announce the death of Dr. Alexander Macdonald, which took place at his residence, 37 North St. Mungo Street, on 30th October, at the early age of 39 years.

Dr. Macdonald studied at St. Mungo's College and the Royal Infirmary, and in 1889 received the triple qualification of the Colleges of Physicians and Surgeons and of the Faculty. He entered practice in Parliamentary Road immediately on receiving his licence, succeeding to the practice of the son of the late respected Bedellus of Glasgow University, Dr. Robert

Macpherson, on that gentleman's demise. He had earlier associations with Dr. Macpherson in the capacity of student-assistant and dispenser.

Dr. Macdonald held a great variety of friendly society appointments, in addition to which he had a large general practice in the north-eastern district of the city. He was also medical arbiter for the Glasgow northern section of the Caledonian Railway, and for a number of years lectured on ambulance to the men employed in this section, with great acceptance.

About two years ago Dr. Macdonald was laid aside with a severe attack of pneumonia, and for a time his life was despaired of, but his hardy constitution pulled him through. From the effects of this illness and the exigencies of his large practice he had been, for some time previous to his death, in indifferent health. He was a man who allowed himself little leisure, and was extremely painstaking and popular with his patients. He is survived by his widow.

ROBERT GRIEVE, M.D., C.M.G.

WE have to record the death, at Barton-on-Humber, on the 15th of last month, of Dr. Grieve, late Surgeon-General of British Guiana. Deceased graduated M.D.Glasg. in 1861, and took the licence of the Royal College of Surgeons of Edinburgh in the same year. He became an assistant surgeon in the Royal Navy, and saw active service against the Taipings. He was attached to the Hospital Darmstadt during the Franco-Prussian war. While in British Guiana, he was interested in asylum work. On his retiral from the colony, where he had risen to be Surgeon-General, he took up residence at Barton-on-Humber, where he died. He was the eldest son of the late Dr. Grieve, of Port-Glasgow.

J. G. DOUGLAS KERR, M.B., J.P., BATH.

J. G. DOUGLAS KERR graduated M.B. and C.M.Glasg. in 1880, and after residence in the Western Infirmary as house surgeon he commenced practice in Bath. Here he soon obtained wide popularity, and enjoyed a large and fashionable practice. His contributions to literature dealt with the Nauheim treatment chiefly. He died on 14th November, from heart failure following on influenza. Deceased was a J.P. for Somerset.

CURRENT TOPICS.

UNIVERSITY OF GLASGOW.—List of Degrees in Medicine conferred on 8th November, 1906:—

DOCTORS OF MEDICINE (M.D.).

I.—WITH HONOURS.

- David Maclure Cowan, M.B., Ch.B., Scotland. *Thesis*—"The diagnosis of typhoid fever by clinical, hæmatological, and bacteriological methods."
 Lizzie Thomson Fraser, M.B., Ch.B., Scotland. *Thesis*—"On the value of the tuberculo-opsonic index in diagnosis."

II.—WITH COMMENDATION.

- Alexander Gray Banks, M.B., Ch.B., Scotland. *Thesis*—"The variations in scarlet fever of the opsonic power for streptococci."
 Robert Stobo, M.B., C.M., Scotland. *Thesis*—"The contributory causes of pulmonary tuberculosis."

III.—ORDINARY DEGREE.

- William Archibald, M.B., Ch.B., Scotland. *Thesis*—"Scarlet fever: a *résumé* of the behaviour of the disease in Glasgow during the twelve years 1893-1904, with special reference to climatic conditions."
 John William Arthur, M.B., Ch.B., Scotland. *Thesis*—"Observations on the treatment of seventeen cases of rheumatism and allied affections by superheated dry air."
 John Donald, M.B., C.M., Scotland. *Thesis*—"The prophylaxis of rabies."
 John Gardner, M.B., Ch.B., Scotland. *Thesis*—"Pyelonephritis in the later months of pregnancy."
 Helen Mary Gordon, M.B., Ch.B., England. *Thesis*—"Borderland cases": their responsibilities and treatment in relation to general practice."
 George Pillans Harlan, M.B., Ch.B., Scotland. *Thesis*—"Serum therapy, with special reference to tuberculosis."
 Alexander Dingwall Kennedy, M.B., Ch.B., Scotland. *Thesis*—"Some observations on age in relation to disease."
 David Dale Logan, M.B., Ch.B., Scotland. *Thesis*—"A study of puerperal eclampsia: its most recent etiology and treatment."
 Anna Pollock Martin, M.B., Ch.B., India. *Thesis*—"Observations on the effect of insanity upon the circulation of tissue-lymph, with special reference to the condition of stupor."
 Mary Jane Pirret, M.B., Ch.B., Scotland. *Thesis*—"A clinical study on the relation of cardiac to mental disease in women."
 Albert Samuel Worton, M.B., C.M., Scotland. *Thesis*—"Chronic suppurative disease of the nasal air sinuses, and its treatment."

BACHELORS OF MEDICINE (M.B.) AND BACHELORS OF SURGERY (Ch.B.).

I.—WITH COMMENDATION.

- James Kennedy Welsh, Scotland.

II.—ORDINARY DEGREES.

Donald Livingstone Carmichael,	Scotland.	Hugh Walker Moir,	Scotland.
Charles Game Angus Chislett,	"	Patrick Joseph O'Hare,	"
Robert Donald,	"	James Charles Donaldson Simpson,	New Zealand.
Annie Rennie Hird,	"	Robert Wilfrid Simpson,	Scotland.
Rose Isobel Hudson,	England.	Christina Gibson Thomlinson,	"
Percy James Kelly,	"		

ROYAL INFIRMARY APPOINTMENT.—Dr. James Scott has been promoted to be Dispensary Physician in succession to Dr. John W. Findlay resigned.

ROYAL INFIRMARY: POST-GRADUATE CLASSES.—The attendance at the post-graduate courses during the year now closing has been highly satisfactory. At the third or autumn term, in September and October, the number of those who attended was 68, without including members of the infirmary staff. It is proposed to have three terms again in 1907, and the committee in charge are now engaged in drawing up the syllabus for the winter and summer courses.

WESTERN INFIRMARY APPOINTMENTS.—At a meeting of the Managers on 13th November, Dr. John Lindsay Steven was unanimously elected to the office of Visiting Physician in room of the late Dr. James Finlayson. The following have been appointed Extra Dispensary Surgeons:—David Dickie, M.B., Ch.B., Robert Carslaw, M.A., M.B., Ch.B., and J. Stoddart Barr, M.B., Ch.B. Murray Ross Taylor, M.B., Ch.B., has been appointed Extra Dispensary Physician.

COMPLIMENTARY DINNER TO DR. JOHN BURNS, OF BRIDGETON.—Dr. John Burns, who completed sixty years of work as a medical practitioner in Glasgow on 4th June last, was entertained at dinner in the Grosvenor Restaurant on Wednesday, 31st October. Over seventy friends, medical and non-medical, were present to do honour to the senior Fellow of the Faculty of Physicians and Surgeons of Glasgow. Dr. William L. Reid occupied the chair, and Mr. Charles Scott Dickson and Professor John Glaister acted as croupiers.

After the loyal toasts had been given, the chairman spoke to the toast of "Our Guest" from a personal point of view, whilst "Our Guest as a Citizen" and "as a Medical Practitioner" was spoken to by the croupiers.

Thereafter Dr. Burns, speaking for twenty-five minutes in

a firm and fluent manner, told many of his experiences in the early days of his practice. The story of work during epidemics of typhus fever, cholera, and small-pox in Bridgeton, and of the primitive means taken to prevent the spread of these diseases, leaves us lost in wonder that anyone who was working amongst the dead and dying for weeks, day and night, should have survived to tell the tale fifty years later. It is difficult adequately to picture to ourselves what the conditions must have been when there was no Board of Health, and when drinking water was mainly obtained from the River Clyde, into which, of course, drainage filtered. Dr. Burns remembered and spoke of the advent of Sir William T. Gairdner to the city, and the gradual improvement which followed on the combined efforts of the medical practitioners and magistrates to devise means whereby epidemics might be met and even prevented. Speaking of the teachers he had known, Dr. Burns mentioned Knox (the anatomist), Hutton Balfour, Andrew Buchanan, and Harry Rainy, and he also alluded to several of his fellow-practitioners, of whom so few survive. In connection with his practice, Dr. Burns emphasised the fact that from the beginning his efforts had been concentrated on the finding of the cause of the disease, and not upon treating symptoms only.

Those who were present will long and pleasantly remember the interest of the meeting, and the fact that the guest of the evening was probably the oldest active member of the medical profession in the United Kingdom who, retaining unimpaired all his faculties, could look back on over half a century of strenuous work, made the occasion one of very special note.

PROFESSIONAL JUBILEE OF DR. THOMAS REID, LL.D.—On the evening of 26th October, Dr. Thomas Reid was entertained to dinner in the Windsor Hotel by some of his old house surgeons. The occasion was the attainment by Dr. Reid of his professional jubilee, and the opportunity was taken to present the distinguished guest with a silver bowl and Mrs. Reid with a silver salver. Dr. George Hunter presided, and Dr. Maitland Ramsay acted as croupier. An interesting, though brief, summary of Dr. Reid's life and work appeared in the *Glasgow Herald* of 27th October.

APPOINTMENT OF POLICE PHYSICIAN.—Dr. R. T. Halliday has been unanimously appointed by the Glasgow Corporation to be Physician to the Police Force, the Fire Brigade, and the Lighting Department.

ST. ANDREW'S AMBULANCE ASSOCIATION.—We have received the first number of the *Red Cross and Ambulance News*, the official organ of the St. Andrew's Ambulance Association and Corps. The number opens with Sir John Furley's remarks on the necessity, for the country, of a Red Cross Society. He is followed by Dr. Beatson, who pleads on behalf of Red Cross organisation. Various other articles and jottings fill the number. The publication will interest all ambulance workers, and we congratulate the Council of the Association on their having secured the services of Dr. R. T. Halliday as editor.

NEW PREPARATIONS, &c.

THE following have been received from Messrs. Burroughs Wellcome & Co., London:—

"Soloid" Products for Ophthalmic Use.—"Soloid" products permit of the ready preparation of small amounts of solutions of appropriate strengths; e.g., one "Soloid" atropine sulphate (gr. 0.545), dissolved in 1 drachm of distilled water, yields a 1 per cent solution. The use of the "Soloid" products ensures an active medicament and fresh reliable solution, prevents waste, and obviates the use of preservatives.

"Soloid" atropine sulphate (gr. 0.545), . . .	tubes of 6
"Soloid" atropine sulphate (gr. 0.272) and	
cocaine hydrochlor. (gr. 1.09), . . .	" 6
"Soloid" homatropine hydrobrom. (gr. 0.545), . . .	" 6
"Soloid" copper sulphate (gr. 1), . . .	bottles of 100

"Tabloid" Ophthalmic Products.—"Tabloid" ophthalmic products readily dissolve when placed on the conjunctiva, and quickly exert their effect. They are easily applied and widely employed. The following new strengths are now issued:—

"Tabloid" ophthalmic physostig. salicyl. (gr. 1/2000),	tubes of 20
"Tabloid" ophthalmic dionine (0.005 gm.), . . .	" 20

"Tabloid" "Xaxa" and Dover Powder.—Each contains—

"Xaxa,"	gr. 2½ (0.162 gm.)
Dover powder,	gr. 2½ (0.162 gm.)

"Xaxa" presents pure acetyl-salicylic acid, which may be used as an antirheumatic, antipyretic, antiseptic, and analgesic. The "Tabloid" product is indicated in influenza, catarrh, and other febrile and infective conditions.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1905-1906.

MEETING XIV.—20TH APRIL, 1906.

The President, DR. JOHN LINDSAY STEVEN, in the Chair.

I.—DEMONSTRATION OF CASES.

BY MR. J. HOGARTH PRINGLE.

1. *Case of "black tongue."*—This condition is due to hypertrophy of the papillæ with pigmentation. Numerous attempts to grow an organism developing black pigment were made, but without success.

2. *Two cases operated on for acute osteomyelitis.*—In the first the lower epiphysis of the tibia was separated from the diaphysis, and the upper epiphysis was involved centrally. The whole diaphysis was removed, and the bone is now almost completely remodelled.

In the second case, the disease was thought at first to affect only the spine of the scapula. Later, the shoulder-joint became affected; and, as the scapula was surrounded by pus, it was removed along with the head of the humerus. The scapula became reformed in four months.

3. *Card specimens.*—(a) An almost completely remodelled femur after removal of the diaphysis from the lower epiphysis to the small trochanter. The limb had to be amputated on account of persistent non-union after fracture.

(b) A "Grawitz tumour of the kidney." After three months' hæmaturia the kidney was removed. Sections of the tumour shown resemble the cortical portion of the suprarenal bodies. Grawitz believed that these tumours developed from suprarenal inclusions in the kidney.

Mr. H. E. Clark said that Mr. Pringle's cases illustrated the fact that the power of the periosteum to reform bone was

considerably greater than was generally supposed. By the term periosteum, he, of course, did not mean only a piece of membrane, but a vital structure with a considerable vascular supply.

Dr. Alex. MacLennan referred to a similar case he had already brought before the Society. He thought it remarkable that the reformed bone always maintained its original triangular shape, when one might have, *à priori*, expected a circular bone, that being the shape of the periosteum when the diaphysis was removed. He considered that the reformed bone became dense in lines of pressure, and tended to absorb where it was not required.

Mr. Pringle, in reply to the remarks made on the remarkable power of regenerating bone, said that the new-formed bone was perfectly formed in every way, and not a mere mass of callus.

II.—ARTERIO-VEINous ANEURYSM OF THE NECK CAUSED BY GUNSHOT WOUNDS: REPORTS OF TWO CASES, ILLUSTRATING THE TENDENCY TO SPONTANEOUS CURE.

By DR. ARCH. YOUNG.

Dr. Young's paper will be found as an original article in our issue for November, 1906, at p. 346.

Mr. H. E. Clark gave some interesting reminiscences from his experiences in the surgical work done during the South African War. He said it was wonderful how many cases did very well when left alone, and undoubtedly many were better not interfered with, but he considered that the army authorities carried this point too far.

III.—SARCOMA OF LOWER END OF THE FEMUR: AMPUTATION: RECOVERY.

By DR. A. N. M'GREGOR AND DR. JAMES SCOTT.

A. S., æt. 30, was seen on 15th March, 1906, when he complained of a swelling about the left knee. The history of the ailment is remarkably free from incident. The inception of the growth is not attributed to any injury as an exciting cause, nor to any ill health or hereditary bias as predisposing causes. It is definitely stated that his birth was premature owing to an accident to his mother, and that there was an abnormal position of the child at birth. Only negative

information can be obtained as to the occurrence of tumours in the grandparents and collateral relations. His father died as a result of some disease of the central nervous system, æt. 52 years; his mother is alive and well at the age of 67 years; there are five brothers, aged from 20 to 35 years, all of whom are well; and his sisters number five, their ages ranging from 23 to 40, approximately. There have been no deaths in the family. The patient himself, with the exception of some digestive troubles, has enjoyed good health. He was married eighteen months ago.

The tumour at the lower end of the left thigh was first noticed about nine months ago as a small, rounded swelling, deeply situated on the internal aspect of the lower end of the femur, just above the internal condyle. It was discovered accidentally, was quite painless, and caused no inconvenience. Between that date and the present time a considerable increase in size has occurred.

Present condition.—By reason of its bulk and weight, the tumour interferes with the movements of the limb. In particular, flexion of the knee is so limited that the patient finds it difficult to get his left foot flatly on a step when mounting stairs. There is still no pain, but he observes that the weight of the limb tires him easily, and causes a dragging movement of the left limb in walking.

On examination, a rounded mass is seen at the inner aspect of the lower end of the left femur, about the size of the shut hand, and, at the same level, there is a distinct swelling on the outer edge of the posterior aspect. There is some enlargement of the superficial veins. There is no atrophy of the limb, which, though somewhat thin, is well developed, and corresponds in size with its neighbour and with the appearance of his body generally. The patient is of spare habit; his somewhat sallow complexion is natural to him. In height he measures 5 feet 6 inches, and his weight averages 9 st. 6 lb. There has been no apparent loss in weight. His heart, lungs, and kidneys are normal.

Palpation shows that in point of size the tumour agrees with its appearance, that it is well defined, and, for the most part, of firm consistence, though at some places it gives a diffuent impression to the examining finger. The growth appears to be continuous posteriorly with that on the outer aspect of the bone. The consistence of this latter resembles that of the larger tumour. Neither of the growths are movable, but are, on the contrary, firmly fixed to the bone. There is no tenderness on palpation, on compression, or on

movement of the limb, whether voluntary or passive. No abnormal pulsation is detected. There is no involvement of the glands in the groin or other accessible regions. There is no swelling of the joint or excess of fluid in the synovial sac.

Two skiagrams of the thigh were made by Dr. J. R. Riddell. They showed a thickening of the lower end of the femur continuous with the tumour, and extending upwards to a point $6\frac{1}{2}$ inches from the lower end of the femur. The irregularity of the outline was most marked at the posterior surface of the bone, as shown in the profile shadow. The antero-posterior thickening was well shown in that photograph, and it extended to within a quarter of an inch of the antero-posterior diameter of the internal condyle ($2\frac{1}{2}$ and $2\frac{1}{2}$ inches) approximately. The other skiagram was taken from before backwards. In it the irregularity of outline of the lower end of the femur was apparent on the inner aspect, and it was evident that the edge of the internal condyle and of the bone, for some distance upwards, was much less distinct than elsewhere. The outline of the tumour was clearly indicated, and the areas of varied density, both in the tumour and in the lower end of the femur, pointed to an altered disposition of the calcareous elements of the bone.

On 16th March a consultation was held with Sir Hector C. Cameron, who confirmed the diagnosis of sarcoma of the lower end of the femur, and agreed that nothing short of amputation through the hip could be advised as affording any reasonable hope of safety or immunity from recurrence.

At St. Elizabeth Home, on 20th March, the amputation was performed through the hip-joint. Dr. T. Kay controlled the hæmorrhage by the Macewen method with complete success, the amount of blood lost being just about as much as would be contained in the thigh. In view of this mode of arterial control, the skin of the abdomen was prepared as for an intra-abdominal operation, so that the assistant was available for the second stage of the operation. The first part of the operation consisted of an incision, exposing the femur, from a point about 2 inches above the great trochanter, vertically down the outside of the limb for about 8 inches. The knife was then taken circularly round the limb at the level of the lower end of the first incision, completely severing all the soft parts to the bone. The bone was sawn through, the vessels secured, and Dr. Kay was relieved from his post. The second stage consisted in the separation of the remaining portion of the femur from the soft parts, and its disarticulation—a procedure greatly facilitated by the use of Peters' lion

forceps; the binding screw of that instrument gave a most satisfactory grip. The few small blood-vessels cut in this stage of the operation were ligatured without difficulty. A number of sutures (chromicised catgut, No. 2) were inserted in order to coapt the cut ends of the muscles at the end of the flap, and, similarly, a few sutures were placed in the depths of the longitudinal wound. A catgut drain was inserted at the junction of the longitudinal and circular incisions, and the wound was closed with interrupted sutures of silkworm-gut.

The after-history was uneventful. The temperature rose on the afternoon of the operation to 101° F., and gradually subsided to normal in the course of four days. Most of the skin sutures and the catgut drain were removed on the ninth day. At a subsequent dressing, on the fourteenth day, the wound being quite healed, the remaining sutures were removed, and a layer of gauze was applied with collodion to support the line of union.

[*Note.*—The patient was seen to-day (7th October, 1906, seven months after the operation). He has improved in health generally, and an increase in weight of nearly 7 lb. has occurred. The stump is freely mobile and painless, the line of suture thin and healthy. There is no evidence of recurrence in the stump, nor of secondary deposits elsewhere.]

Pathological report by Dr. James Scott.—The tumour was dissected out down to its attachment to the bone.

In size it was distinctly larger than the fist. The colour was greyish-white, with several dark hæmorrhagic areas. In consistence it was fairly firm, the areas of hæmorrhage not being sufficiently large to cause appreciable softening. The surface was irregular, and the borders quite distinct, but there was no definite capsule.

It filled up practically the whole of the popliteal space, bulging laterally, but chiefly on the inner side. The tumour was found to be firmly attached to and apparently growing from the bone at the posterior and internal borders. The adherent base measured about one-third of the diameter of the tumour.

The bone was found to be considerably thickened posteriorly and along the internal border. Spicules of bone were found in the tumour near the bone.

To determine the degree of involvement of the bone, the femur was sawn through vertically in the coronal plane

(Fig. 1). The thickening of the bone was found to extend, on the inner aspect, 6 inches above the internal condyle. From this point there was a double line of bone down to the epiphysis. The inner line corresponded fairly closely with the original contour line.



FIG. 1 (two-thirds natural size).

Between these two lines the space was filled with tumour tissue. In the upper third of the inner line of bone a distinct gap of about a quarter of an inch could be felt. This suggests that the tumour may have originated from the periosteum in this region, and may have grown inwards and invaded the bone. The medullary cavity and cancelli of the lower end

of the bone were entirely replaced by the tumour, which extended down to the epiphyseal line. This mass measured 3 inches by $2\frac{1}{4}$ inches.

Microscopic sections from the mass outside the bone show spindle cells of medium size (Fig. 2); no giant cells are seen. There are numerous capillary vessels, and here and there aggregations of red blood corpuscles. These hæmorrhagic areas are mostly small in size. The tumour is



FIG. 2.

Taken from the mass of the tumour outside the bone. Showing spindle cells but no giant cells.

of a highly cellular character, with very little connective tissue.

Sections from the tumour mass between the two internal lines of bone, and from the tumour in the medullary cavity, show, in addition to the above, a few giant cells (Fig. 3).

Clinically, the case was regarded as a periosteal sarcoma, but the involvement of the medulla with the presence of giant cells, though relatively very few in proportion to the spindle cells, and occurring practically only at the edge of altered bone not yet invaded by the tumour, raised the question whether it might not be a myeloid sarcoma.

The evidence in favour of its origin from the periosteum

seemed to us, however, to be very strong, namely, the absence of colour in the tumour, the absence of any tendency to expansion of the bone, the presence of spicules of bone in the tumour, the rarity and localised position of giant cells, and their absence from the fleshy part of the tumour outside the bone.

"Many central tumours of bone contain large multinuclear cells, but it is only when these large cells are present in such



FIG. 8.

Shows a few giant cells situated almost entirely at the junction of the tumour with a mass of granular *débris* (altered bone).

quantity as to make up a large part of the tumour that they should be classed as myeloid sarcomata. Myeloid sarcomata only occur as central tumours of bone."¹

¹ Bland-Sutton in Treves' *System of Surgery*, chap. xxii, p. 468.

MEETING XV.—4TH MAY, 1906.

The President, DR. JOHN LINDSAY STEVEN, in the Chair.

I.—CASE OF SARCOMA OF THE TEMPORAL DURA MATER
WHICH SIMULATED A SUPPURATIVE MASTOIDITIS.

BY DR. WALKER DOWNIE.

[ABSTRACT.]

The patient was a child 1 year and 9 months old. It had been brought from the country by its parents to their medical adviser in town on account of a purulent discharge from the right ear. The doctor found the right meatus filled with a large firm fleshy growth, which projected beyond the opening of the meatus, and was surrounded by purulent discharge. Also, there was paralysis of the right side of the child's face. He removed a portion of the projecting growth with forceps, but as it appeared to be something more than a simple aural polypus he brought the child with its parents for my opinion.

There had been a purulent discharge from the right ear for some weeks, and the facial paralysis had been present for three weeks; but, as the parents had been assured by a clergyman that it would pass away when the eye-teeth appeared, it caused them no concern. There was blood, mixed with foul-smelling pus, oozing from the right auditory meatus. The auricle was prominent, being pushed forward by a swelling of the mastoid, and the whole mastoid area was swollen, painful to the touch, and fluctuant towards the centre of the swelling. I advised exploration of the mastoid under chloroform, which was done on the following day.

Through a long post-auricular incision, extensive disintegration of the mastoid was brought into view. The bone was denuded of its periosteum and necrosed in part, and masses of vascular fleshy tissue, resembling granulation tissue, filled the meatus, the tympanum, and the antrum. The granulations were removed by curettage, the pus and foul-smelling *débris* were washed away, the necrosed bone in great part removed, the surface left smooth, and the wound packed with iodoform gauze. On the fifth day the posterior wall of the meatus

was split, and the post-auricular incision closed by sutures. Healing was rapid, and the child was taken home to the country within fourteen days of the operation.

Three weeks later, while the mastoid wound was firm and healthy, granulations appeared in the meatus, and these I scraped away under chloroform. They formed an abundant growth of soft vascular tissue, and on microscopic examination the tissue was described, as it had been on the first occasion, as rapidly growing granulation tissue.

Ten days later, and while at home, the child had several convulsive seizures, and these were followed by rapid swelling of the right mastoid. When the child was brought to a home two days later, the right mastoid was the seat of a large fungating mass, which I at once recognised as a sarcoma.

An attempt was made to remove it under chloroform. After the removal of the external portion of the new growth, the tumour was traced within the cranium, where it apparently had had its origin, and from which it had forced its way outwards, invading and destroying the bone in its progress.

At the *post-mortem* examination (the full report of which is published in the *Practitioner*, November, 1906) the tumour, which proved to be a sarcoma of the mixed-cell type, was found to have had its origin in the dura mater over the tegmen tympani.

II.—NOTES OF A CASE OF ENTERIC FEVER IN WHICH THE ACTION OF THE TYPHOID VIRUS WAS DIRECTED MAINLY TO THE KIDNEY (NEPHRO-TYPHOID).

BY DR. ALEX. NAPIER AND DR. R. M. BUCHANAN.

Drs. Napier and Buchanan's paper appears as an original article at p. 401.

III.—AN ACCOUNT OF FIVE CASES OF PYELITIS IN ENTERIC FEVER, WITH A DESCRIPTION OF THE *POST-MORTEM* APPEARANCES IN ONE CASE.

BY DR. JOHN BROWNLEE AND DR. E. S. CHAPMAN.

Drs. Brownlee and Chapman's paper will be found as an original article at p. 407.

Dr. Lindsay Steven said that he had seen Dr. Napier's case

on the 10th August, 1905, and read the following note, which he had made at the time:—"Acute hæmorrhagic nephritis without dropsy. The present illness since Sunday, 31st July, 1905, and with an antecedent attack of hæmaturia at the Glasgow Fair. In the interval not feeling well. During the past week in bed, with high temperature, rather loose bowels, occasional sickness, progressive diminution of urine, which still contains much blood, though casts have gone. In the deposit there are many leucocytes (pus), and a large chain-like organism within the last three or four days. Pain in right lumbar region, and thrombosis of superficial veins there, where he had an accident ten years ago. Suspect additional septic inflammation at this spot. No pericarditis. Nothing in lungs. Erythema of skin of trunk. Has had the usual treatment. Prognosis—serious. *Treatment.*—Milk only. Watch right loin for necessity of surgical treatment." Such is the note made after the consultation. Dr. Steven agreed entirely with Dr. Napier as to the difficulty of diagnosis, although there could be no doubt now as to the fever being enteric. It was not impossible, however, that the enteric fever had been imposed upon an existing renal disease. He asked Dr. Buchanan, in view of his statement that one-third of cases of enteric had the organism in the urine, and this occurred apparently frequently in convalescence, if it was necessary to continue the isolation of the patient.

Dr. A. B. Sloan said that he had two cases at Ruchill similar to those described by Dr. Brownlee. In one, the symptoms had come on during convalescence—a month after the fever—with fever and headache. On the thirty-second day the urine became suddenly opalescent, and was found swarming with bacilli. The symptoms soon passed off, and the organism was, unfortunately, not isolated.

Dr. Napier said that through an accident he had discovered that the guaiac reaction was not obtained when the urine was alkaline.

Dr. Brownlee said that in two of his cases, at least, he was certain that the reaction was acid, and he thought it was acid in the others also.

Dr. R. M. Buchanan, in reply to a question put by Professor Glaister, said that the laboratory experiment, at the time the bacilli were living in the urine, was made on an actual specimen, and not on a normal urine inoculated with organisms. He thought it was undoubtedly necessary to isolate the patient as long as the bacillus was found in the urine.

IV.—CEREBRO-SPINAL MENINGITIS (EPIDEMIC).

BY DR. JOSEPH N. GLAISTER.

The following are the brief records of two cases of cerebro-spinal meningitis, occurring in members of the same family, which came under my observation. I may say that the symptoms exhibited by the first patient were, at first, puzzling, and that, owing to the short interval of time which occurred between the attacks, a passing suspicion was raised in the mind that possibly the ingestion of some poisonous substance was to be held as accountable for the illnesses. This suspicion was generated because the initial symptoms in each case were not unlike those which are found in irritant poisoning, viz., more or less persistent vomiting, and great depression and weakness. So far as I have been able to gather, this suspicion of poisoning has been entertained in other cases, which, in their after-development, proved to be cases of this disease. However, in the two cases which came under my observation, that view had very soon to be abandoned, because of the later symptoms which developed in the progress of the illness.

I propose, in what I am now about to record concerning my cases, to confine myself entirely to a narration of their clinical aspects, leaving to another time, perhaps, to deal with the literature of the disease as it has exhibited itself in this country.

The cases showed themselves in two children of the same family, aged 3 and 8 years respectively. So far as I could gather, up to the onset of their present illness, they had been fairly healthy children. A day or two before I was called to treat them, they had come from a suburb of Glasgow, outside the city boundary, whence they had removed into the city. This point is of some importance relative to the source of the infection.

CASE I.—A. B., a girl, 3 years of age, according to the account of her mother, seemed first to exhibit symptoms of being out of sorts on the afternoon of Saturday, 14th April. She complained of being tired, but did not complain of suffering from any pain. Throughout that night she was very restless, her skin being for the most part dry and hot, but showing at times some inclination to perspiration. Next day, the 15th, she continued to be restless; restlessness taking the form of incessant movement from side to side in the bed.

Her face became sallow in appearance. In the afternoon vomiting commenced, and continued more or less persistently; the vomited matter consisted chiefly of watery mucus, although toward evening it became greenish in colour. During the night of the 15th the feverishness and restlessness continued. Throughout the next day, the 16th, her condition generally remained the same. On the evening of that day I was called to see her.

The condition when I first saw her was as follows:—She was in a state of collapse, her features being very pale and pinched. Her pulse was small, thready, and very rapid—so rapid, indeed, that I was unable to count it. The temperature was 97° F. There was considerable retching; the tongue was dry, and covered more or less with a white coating. Her head was slightly retracted, and when attempts were made to move the head into a more natural position the movement caused her pain. She was, however, perfectly conscious. On my visit the following morning, 17th, I was informed that the restlessness had continued during the past night. Her head was now markedly retracted. Pulse was 100, and the temperature was 101° F. There was now no vomiting, and there had been none since the previous evening. Castor oil had been administered the night before, and, in consequence, the bowels had moved. It was now noticed for the first time that she had internal strabismus of both eyes, and that the pupils were markedly dilated. She was lying quietly, being partially comatose, but still capable of being roused. For the first time, also, incontinence of urine showed itself. In the evening I found the pulse to be 140, and the temperature 101° F. Her general condition was practically the same as in the morning. Her decubitus was interesting; she lay on her side, the thighs being flexed on the abdomen, the head being retracted, and her spine curved forwards. The breathing was very superficial, and was, at times, almost Cheyne-Stokes in character.

For the first time a rash was observed, consisting of three small unraised purplish petechial spots, averaging in size a little less than a hemp-seed, and situated on the upper part of the abdomen in the hypochondriac region. There was one similar spot on the outer side of the right ankle. The strabismus was now more marked, but the pupils contracted to artificial light. Although her eyes were not closed, it seemed to me that she could not see, and this was proved by the fact that there was not the slightest movement of the eyelids when the hand was closely and quickly passed before the eyes. It would thus appear that the coma had deepened

in intensity since the former observation of the day previous. Dr. Lindsay Steven was called in consultation. Next morning, 18th, I was informed by her mother that she had remained all night in the condition I have just described, lying all night perfectly still. Her pulse now was 140, and her temperature 101° F. (Dr. Chalmers, medical officer, saw the cases with me). In the evening no change was found in her state. Samples of blood and swabs from the nasal mucous membrane were taken for bacteriological examination by Dr. R. M. Buchanan, city bacteriologist. Next morning, 19th, I found her condition generally unaltered. The pulse numbered 140, and the temperature registered 100° F. At the evening visit I was satisfied that there was evidence of returning vision as well as of hearing. When, for example, a lighted wax taper was brought into the line of vision and passed outward slowly from the eyes, she followed the light so far as the strabismus would permit. When spoken to loudly, moreover, she turned her head in the direction of the sound. The petechial spots on the body had become lighter in colour. Next day, 20th, the pulse was 130, and temperature 101° F. in the morning. The strabismus was less pronounced. She spoke for the first time since the night of the 16th (Monday). In the evening the pulse was 120, and the temperature 102° F. Next morning, 21st, the pulse was 120, and temperature 103° F. The child, though now fretful and irritable, was conscious, and asked for a drink. In the evening the pulse was 100, and the temperature 102° P. On the following morning (Sunday, 22nd), the temperature was the same as that of the night before, and the pulse was 120. The strabismus was now almost entirely gone. The bowels had moved naturally. The patient asked for food, and wished to get up. Incontinence of urine, however, still continued. The retraction of the head and the curvature of the spine were somewhat less marked. Pupils have remained markedly dilated up till now.

From this day (Sunday, 22nd), until the following Thursday, 26th, she was very restless and irritable. The pulse and temperature were unable to be taken, as the slightest touch of her body increased the restlessness.

On Thursday, 26th, she was rather quieter. Pulse, 120; temperature, 100° F. Vision did not appear to be quite so acute.

Friday, 27th.—She had remained quiet all night. Pulse, 120; temperature, 99.4° F. Pupils still remain dilated, the left rather more so than the right. Vision quite gone, no response to hand passed over the eyes. The pupils do not contract to

artificial light. Up to this period she has taken liquid nourishment very well, but there is now some difficulty in getting her to take it. Teeth more or less clinched.

From the above date until to-day (Friday, 4th May), she has remained in this quiet condition, and is much emaciated. Violent twitchings of arms and legs, and tremors of both hands. Neck, chest, and upper part of abdomen covered with sudamina. She died this evening after violent movements of the whole body.

CASE II.—This patient, M., was the elder sister of Case I. Her mother reported to me that M. complained first on the evening of Sunday, 15th April, the day after her sister had begun to ail. She complained of feeling cold and tired. During that night she was restless, her skin dry and warm. Next morning she began to vomit, and there was much retching. The restlessness increased, but there was no complaint of pain. I saw her for the first time that night, along with the former patient. She was then very restless, tossing her body from side to side in bed. Temperature registered 101° F., the pulse being 100, and fairly full in quality.

On the morning of Tuesday, I was informed that the vomiting had persisted throughout the night, and was still continuing. The pulse now numbered 120, and was small in character. Temperature was 102° F. The most noteworthy feature of her condition is that she is never at rest, her body being constantly on the move. On my visit in the evening I found that the vomiting had stopped during the time since I was last there. Her tongue was dry and more or less covered with a white coating. It was impossible to count the pulse owing to the incessant movements of the patient's body and limbs, but it was found to be irregular in rhythm. Temperature was now 103° F. There was slight retraction of the head. There was no strabismus. For the first time the following rash was observed:—About a dozen unraised purplish petechial spots, of the same size as in the last case, were scattered over the front of the neck and the upper part of the chest. In addition, there were a few spots on the inner sides of the thighs. On Wednesday morning, 18th, the patient was still as restless as before, and she was now shouting loudly. The pulse was 140, and the temperature 103° F. There was now extreme retraction of the head, and marked convexity forwards of the spine. As in the former case, the thighs were strongly flexed on the abdomen, and for brief periods the decubitus was lateral, the patient supporting her chin with the palm of the left hand,

the left elbow being supported on the flexed knees. During the marked periods of greatest restlessness, which occurred often, it was noticed that the right arm and right leg were jerked somewhat forcibly from the trunk, the effect of this one-sided inuscular action being to turn the whole body in the bed, and, if uncontrolled, to cause her feet to come gradually round to the position in which her head originally was. There was tremor of the hands. During the brief quieter periods, with her head supported by her left palm, she appeared to look about her in a dazed condition, and when then spoken to seemed to comprehend, but with difficulty, what had been said. The petechial spots were now increased in number from a fresh eruption, and new spots appeared about the ankles. In the evening her pulse was found to have risen to 150, the temperature being exactly that of the morning.

Next morning (Thursday) I was informed that she had passed a most restless night; that while her general condition was the same as before, the jerky movements of the right limbs were even more pronounced, and that she had shouted more. During what appeared to be a period of partial consciousness, she happened to observe her little sister lying at the foot of the same bed, whereupon she muttered incoherently something which was thought to apply to her sister. The pulse was now 140, and the temperature 102° F. During the day she became rather quieter, and there were longer periods of restfulness in which she appeared to be more unconscious. The pulse in the evening was 150, the temperature 102° F.

Friday morning (20th).—She had passed a quieter night. She looks, if anything, better. Pulse was 150, temperature 101° F. Throughout Friday there were more periods of increased restlessness. The colour-tone of the petechial spots is lighter. In the evening it was noticeable that she was worse, although the pulse was 140, and the temperature only 101° F. The breathing had become more shallow. Pupils were distinctly less dilated. She was completely unconscious. When I saw her again at midnight, it was apparent that she had not long to live. She died before the next morning. A lumbar puncture was made on her dead body on Saturday morning by Dr. R. M. Buchanan and myself.

Notes.—This patient had been unable to take nourishment from the Tuesday evening until her death. Even nutritive liquids she could not swallow, owing, it was believed, mainly to the extremely retracted condition of the head and convexity of the spine. Besides, the teeth during most of the

time of her illness, and particularly from the time of onset of the retraction of the head, were more or less clinched, as in tetanus; and even while she was in some measure conscious, on being asked to open her mouth she evinced the greatest difficulty in doing so, and even then did so only to a very slight degree. The pupils were, as in her sister's case, markedly dilated during the whole illness until a few hours before her death, when they became contracted. During the last few days, her tongue, which at first showed white coating, became very dry and brown. Moreover, the bowels were constipated for the last three days of her illness.

Observations.—Notwithstanding the brevity of these clinical records, it will be apparent that both illnesses had certain definite symptoms in common—the history of the onset of the illnesses, the early onset and persistent character of the vomiting, the restlessness, the development of coma, the dilatation of the pupils, and the retraction of the head and convexity forwards of the spine. It is obvious, at the same time, that in a series of cases there must necessarily be some differences in the intensity and distribution of the nervous systems, depending upon the region or regions of the brain and the tracks of the spinal cord which are principally attacked by the specific inflammatory action. This is illustrated in the above cases, inasmuch as the left side of the body of the second patient seemed either to remain more or less normal or to be in a state of paresis, while the right limbs were thrown into what may fairly be termed convulsive action. Doubtless the distribution of the inflammatory areas accounts for these individual differences.

It would be imprudent at this stage of the history of these cases to offer any opinion as to the probable source of the infection, or as to whether or not these were isolated cases, or cases belonging to a series. Due inquiry will certainly be made by the sanitary authorities respecting not only the place where the attacks developed, but the place from which the patients came. But one thing is quite obvious—that, considering our comparative want of familiarity with the manifestations of the disease, owing to its relative infrequency in this country, practitioners will require to be on their guard not to confuse this disease with ordinary meningitis and tubercular meningitis. This is all the more necessary when it is remembered that other countries do not experience a like want of prevalence. Without multiplying references, one has only to turn to the *British Medical Journal* for last week (28th April), p. 1006, to find that in the province of Ontario,

Canada, since 1897 there have been no fewer than 1,140 deaths from this disease, and that in the year 1899 alone there were 214 deaths. Much has yet to be learned concerning the likely source of the organism, its mode of entrance into the human body, its incubation, the precise nature and degree of its infectivity, and its incubation period.

Dr. Lindsay Steven said that he had been asked by *Dr. J. N. Glaister* to see the cases in consultation with him on the evening of Tuesday, 17th April, 1906, at half-past eight o'clock, and thought that he could best add his quota to the interesting records of *Dr. Glaister* and *Dr. R. M. Buchanan* by reading to the Society the notes which he jotted down at the bedside of the patients.

Two cases of what I think to be cerebro-spinal meningitis in children of the same family, aged 3 and 8 years.—(1) *Alice B.*, æt. 3 years, was well enough till Saturday afternoon, the 14th inst. In the early evening, about 5 P.M., she was observed to be heavy and dull. A little later she was taken out for a walk by her parents, but had to be carried home and put to bed at once. Since then she had been quite prostrate. All the Saturday night she was restless, and perspired very much. Her mother, thinking she had caught a cold, poulticed her. Vomiting, apparently of an urgent kind, began on Sunday afternoon, the 15th inst., at 2 o'clock, and continued till Monday night. There was no diarrhoea, but one good, though constipated, motion had been obtained on Sunday as the result of castor oil. During the night of Monday, 16th inst., the restlessness became more marked, and retraction of the head was first noticed. At the time of consultation (the evening of the 17th inst.), the head retraction was very marked, the nuchal muscles being rigid. The pupils were dilated, but responded slowly to light. Slight squinting was also noticed. The tongue was dry and covered with a thick white coating. The pulse was 120, and regular; the respirations numbered 26, and were occasionally very shallow, and sometimes slightly Cheyne-Stokes in type; the temperature, 101° F. The child was lethargic, if not actually unconscious, lying quietly on its nurse's knee, though liable to be restless on examination. One or two doubtful red spots were seen on the front of the trunk. Nothing detected in the chest or abdomen.

(2) *Maggie B.*, æt. 8 years. Remained quite well until Sunday afternoon, 15th inst., about 2 or 3 o'clock, when she was noticed to be sitting on the fender shivering. She was put to bed, and at 5 o'clock was thought to be a little better,

and slept till about 7 o'clock. After that she became very restless, remaining so all night, but did not perspire. On Monday forenoon, 16th inst., vomiting began, and continued till to-day. Some of the vomited matter on the towel had a dark, tarry, mucous appearance; the bowels had been moved by medicine, and the motions were also described as tarry. At the time of examination there was extreme retraction of the head, and very marked restlessness, the child tossing herself about in bed; there was, at the same time, lethargic dulness. The temperature was 103° F. Pulse and respiration not noted. The pupils were wide, responding to light. Fairly numerous round red spots were present on the upper part of the chest and the front of the abdomen.

On taking all the phenomena into account, Dr. Glaister and myself had no difficulty in arriving at a diagnosis of cerebro-spinal meningitis, probably of the epidemic type; and we agreed that the Medical Officer of Health should be informed of the cases. The initial symptoms, simulating as they did those of acute irritative gastritis, suggested to Dr. Glaister at first the possibility of acute poisoning as the cause of the illness, but the most careful inquiries, repeated again at the time of our consultation, failed to discover that anything out of the usual course had been taken by the children. The only thing to which any suspicion could attach was some chocolate, made up in the form of Easter eggs, which had been bought for them on 13th April (Good Friday). The little fancy basket in which the sweets had been packed was shown to us. We came to the conclusion, however, that this could have had nothing to do with the illness, the symptoms of which did not begin in the one case until twenty-four and in the other till forty-eight hours after the sweets had been eaten. The only other diagnosis which fitted the symptoms was epidemic cerebro-spinal meningitis.

Professor Glaister said that epidemic cerebro-spinal meningitis was not so rare in this country as was generally thought. Some time ago, for the Corporation of Paisley, he performed a *post-mortem* examination in one of three fatal cases of supposed poisoning; one case had recovered. He had then been able to prove that death was due to epidemic cerebro-spinal meningitis. He showed photographs which had been taken of the organism.

Dr. Middleton said he had a case recently at the Royal Infirmary in an adult, which had been sent in as a case of pneumonia. He had been unable to examine the posterior

aspect of the man's lungs, because the patient had been quite unable to sit up. This phenomenon he looked on as simply Kernig's sign reversed. At the *post-mortem*, performed by Dr. Workman, there was found an abundant exudate of thick pus at the base of the brain, and extending up the various fissures to the vertex. Another case which he had seen in private had a very sudden onset, and had terminated fatally in twenty-four hours. The mother of this child had taken the disease.

Dr. Eben. Duncan said he had recently at the Victoria Infirmary had two cases of pneumococcal meningitis, and that both cases had marked anterior curvature of the spine.

Dr. Napier said he had recently had a case in which he had six times removed about an ounce of fluid by means of lumbar puncture, and he thought in this way had lessened the comatose condition of the patient.

Dr. Inglis Pollock said that he had isolated the diplococcus intracellularis last winter from an eye swab.

Dr. Allan said that there had been a case in Dr. Finlayson's ward where the infection had been very sudden, and death had taken place in thirty-four hours.

MEETING XVI.—11TH MAY, 1906.

The Vice-President, DR. J. WALKER DOWNIE, in the Chair.

I.—TWO CASES OF SARCOMA OF THE POPLITEAL SPACE.

BY DR. A. A. YOUNG.

CASE I.—The first specimen shown was a mixed-celled sarcoma, about the size of a tangerine orange, apparently originating from the connective tissue in the lower part of the popliteal space, lying closely against the upper part of the tibia, but not growing from bone or periosteum.

The popliteal vessels and internal popliteal nerve ran into the tumour at its upper and posterior aspect, and became almost lost in its substance. There was thrombosis of the vessels and complete degeneration of the nerves below the tumour. In preparing the specimen the surrounding muscles

were easily dissected off, but proved, on microscopical examination, to be infiltrated with tumour tissue. There were no signs of encapsulation.

The patient, whose leg had been amputated, was a mason, æt. 50. Five months before operation he began to suffer from attacks of pain in the calf, and by and bye in the heel and sole of the foot also. The pain gradually became almost constant, with exacerbations felt especially in the heel and down the outer side of the leg. After two months the knee became slightly flexed and walking became almost impossible from the pain and flexion of the knee-joint. For four months the patient was not aware of any tumour or swelling, and attributed his pain to rheumatism. He noticed a lump at the back of the knee about a month before operation. On admission to hospital the knee was semiflexed, the foot slightly drooping, with the skin over it glazed and reddish, with beads of perspiration, especially noticeable near the great toe. There was a slight numbness felt, but no loss of sensation could be made out. Pulsation could be felt in both tibial vessels.

Amputation above the knee was performed and the patient did well, but a few months later he had a pleurisy, from which he recovered, but shortly after he died with a hemiplegic stroke which was possibly due to tumour metastasis.

CASE II.—The second specimen was a large, apparently well-encapsuled tumour, dissected out from the upper and inner aspect of the popliteal space of a woman, aged 39. The tumour was about the size of a very small melon, and on cross section showed some strands of connective tissue, also some parts of apparently pure myxomatous tissue, and other parts more suggestive of sarcoma. On microscopical examination the tumour proved to be a mixed-celled sarcoma, with a good deal of myxomatous tissue in the deeper parts. The part of the tumour which had been nearest the surface of the body, was of a purely sarcomatous character, and highly cellular.

The patient had had a lump at the inner side of her knee for several years, which had given her no trouble until a month or two before operation, when it began to increase rapidly in size, and gave rise to a good deal of discomfort. There was, however, no pain in the foot or leg, and any discomfort was at the site of the tumour.

Amputation was advised, but the patient was so averse to this that a less drastic operation was performed. At the operation the tumour was easily removed from its deep attachments in the popliteal space, but a part of the inner

hamstring muscles overlying the tumour had to be removed along with it. The muscle, however, was easily removed afterwards, and the tumour appeared to be well encapsuled.

Eight months after the operation patient was reported to be in excellent health, with no signs of recurrence.

It is interesting to note that in the case of the large tumour there were none of the so-called "pressure symptoms" present, while in the case of the smaller tumour, which involved the popliteal nerve, pain and impairment of function in the leg were present long before any tumour was detected, illustrating the fact that it is not by pressing on nerves and blood-vessels that tumours produce their remote effects, but by the tendency of malignant growths to invade surrounding structures.

[*Note on Case II* (November, 1906).—Nearly a year after operation, the patient had an attack of "pleurisy," and when seen two months later, in October, 1906, a small tumour was present in the rectus femoris muscle and another in the deltoid. There was also a recurrence in the lower part of the scar.]

II.—CASE OF INTESTINAL OBSTRUCTION, THE VERMIFORM APPENDIX FORMING THE CONSTRICTING BAND.

BY DR. A. A. YOUNG.

[ABSTRACT.]

A man, *æt.* 63, was admitted to the Western Infirmary on 17th August with complete obstruction of the bowels, having suffered from abdominal symptoms for five days.

On the 12th he was suddenly seized with severe pain in the abdomen which lasted all night, but was greatly relieved next day when the bowels were moved with an enema. Slight pain returned on the 16th, and a slight movement of the bowels took place after an enema. On the evening of the 16th pain again became severe, and there was much vomiting, which was said to have a *fæcal* odour. During the next day vomiting and pain continued, and there was no flatus passed. Symptoms became less severe during the afternoon, and in the evening he was admitted to hospital. He had been troubled with constipation for years, and was said to have suffered from appendicitis five years ago.

On admission the patient was very excitable, but there was no collapse. Pulse 80, and fairly good.

The abdomen was markedly distended all over, and there was free fluid in the flanks. No marked tenderness. A small

opening was made in the middle line, and some fluid escaped. Large coils of distended small intestine were encountered, and on turning these aside a rounded firm tumour could be felt, apparently in the wall of the small intestine. This tumour was brought into view, and was about the size of a large marble, though somewhat irregular in outline. It was covered with peritoneum, and appeared to be growing from the intestinal wall. A band could be felt passing from the tumour to the region of the cæcum, and a loop of small intestine was felt to pass under the band between it and the posterior wall of the abdomen. A second opening was made in the parietes in the iliac region, and the constricting band was found to be the vermiform appendix, which had practically no meso-appendix, and whose distended and bullous extremity was firmly adherent to the small intestine, giving rise to the tumour which had been seen on first opening the abdomen. The appendix was removed, and the strangulated gut released from behind it.

Some difficulty was found in removing the distended and bullous end from the small intestine, but this was accomplished, and the raw surface left in the intestine was covered over by a few Lembert sutures in the peritoneal layer.

The patient made an excellent recovery, and left the hospital on 6th September.

The appendix was found to be normal, though with a small lumen in the proximal part; but at the tip there was a large cavity filled with thick mucous material, and there was much old inflammatory tissue fixing it to the intestine.

III.—CASE OF ACUTE (LOBAR) PNEUMONIC PHTHISIS: SUBSIDENCE OF THE FEVER AFTER TWO MONTHS: DEATH FROM PAR-ENCHYMATOUS NEPHRITIS.

By DR. T. K. MONRO.

John T., æt. 18, worker on the railway, was admitted to the Glasgow Royal Infirmary on 23rd December, 1905, having taken ill on 6th December. For the opportunity of observing the case I am indebted to Dr. Robert Scott, of Springburn.

The symptoms and the physical signs corresponded in a general way with those of pneumonia of the left upper lobe, but though sixteen days had elapsed since the onset there was no sign that a crisis was approaching, and, indeed, the tremors from which patient was suffering suggested those of the typhoid state. The heart and the urine were normal. Pulse, 118. The temperature exceeded 103° on the first three days

of his residence. Respiration, 32. Leucocytes, 6,800 per c.m. The expectoration was said to have been mostly white in colour, though sometimes brown.

Among the facts which tended to differentiate the condition from ordinary pneumonia were the long duration of the fever, the presence of particularly hollow sounds at one point on the left front, and the absence of leucocytosis. Moreover, tubercle bacilli were found in the sputum, and two or three of patient's family had suffered or died from phthisis.

The fever continued moderately high for about a month after admission, and then gradually subsided to normal in the course of about ten days, after which it was mostly normal or subnormal, though occasionally rising to 99°, or even higher. The duration of the fever, therefore, was about two months.

Within a week after admission thrombosis developed in the left femoral vein (28th December). About 6th February albumen appeared in the urine, and the latter was found to contain hyaline and granular casts with renal epithelium and leucocytes. By this time the temperature had fallen nearly to normal. A fortnight later (18th February) the temperature was normal, albuminuria was well marked, and there was cedema of the face as well as of other parts. Blood appeared in the urine about 21st February. No tubercle bacilli were found in the urine (24th March). Though there seemed to be shrinking of the left side of the chest, the heart was not displaced to the left, but, if anything, a little towards the right. A very short V.S. murmur was heard at the apex, and rather more distinctly at the base. Over the dull part of the left lung in front, the principal auscultatory change was a great diminution in the volume of respiratory murmur, but other signs, such as tubularity of respiratory murmur and crackling sounds suggestive of friction, could be detected. V.F. was almost abolished, while V.R. was much increased, and whispered pectoriloquy was present. A few crackles were heard at both posterior bases.

On 31st March patient complained of headache, and on the following morning he was seized with convulsions, and he passed the evacuations in bed. Death took place that day.

Post-mortem.—It was found that neither lung was adherent to the chest wall. Almost the whole of the left upper lobe was quite solid, and was whitish-grey on section, so that it might easily have been taken to be tumour, were it not that beyond the margin of the consolidated part there were tubercles of various sizes, and more or less advanced in caseation, thickly scattered in the lung tissue. Tubercle

bacilli were found in the diseased lung. A tubercular focus was found in the right apex. The heart weighed 11 oz., and had a soldier's spot at the apex of the left ventricle. The condition of the kidneys pointed to subacute parenchymatous nephritis. These organs weighed 14 oz. They were pale and fatty, with well-marked stellate veins, and non-adherent capsules. Iodine solution did not reveal amyloid disease. A few small tubercles were seen under the capsule of the liver. Nothing of importance was found in the spleen, brain, or membranes.

Remarks.—Setting aside the acute miliary disease, we may recognise four types of tuberculosis of the lungs—two acute, viz., pneumonic and broncho-pneumonic; and two chronic, viz., caseous and fibroid. The broncho-pneumonic and caseous types are common, while the pneumonic and fibroid are comparatively rare. Tubercular pneumonia, with high fever persisting for weeks or months, involves an immense strain on the patient; but if, as in this case, he feeds and sleeps well, he may come through it safely. When this happens, the tendency in favourable cases is for the caseous material to be eliminated, the resulting cavities to contract, and the opposite lung to undergo hypertrophy. In the present instance it would appear that up to the time of death elimination of the caseous matter had scarcely even begun. This may have been delayed by the nephritis which was the immediate cause of death.

Dr. James Carslaw asked *Dr. Monro* if pneumococci had been noted in the sputum of his case as well as tubercle bacilli. He referred to a tubercular case which was going on in Professor Stockman's ward in the Western Infirmary at the time, in which, within two or three days, the whole of one lung became solid. Early in the case pneumococci were found to be present in large numbers in the sputum, as well as numerous tubercle bacilli, and the temperature had remained high—about 102° F. to 104° F.—for six weeks already without the slightest sign of resolution.

Dr. Monro replied that the pneumococcus had not been found in this case.

(The report of this Meeting will be continued in our next issue.)

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1905-1906.

MEETING VI.—12TH MARCH, 1906.

The President, PROF. ROBERT MUIR, in the Chair.

I.—CASE OF SUPPLEMENTARY LOBE OF THE LIVER CAUSING SYMPTOMS OF PYLORIC OBSTRUCTION.

BY DR. JAMES A. ADAMS.

Dr. Adams's paper will be found as an original article at p. 415.

Dr. Rutherford asked if any difficulty was encountered in the removal of the growth.

Dr. Adams replied that the peritoneum was first stripped off the tumour, and, after removal of the lobe, it was rolled in so as to close the liver wound and stop the hæmorrhage.

Dr. Muir said that the supernumerary lobes of the liver were in some cases of the nature of malformations of the organ, in others the tumour was of the character of an adenoma. The last case which he had seen belonged to this latter type. An oval mass was present in the liver substance, not quite pedunculated, and resembling liver tissue, with well-marked, dilated vessels, but no evidence of bile-ducts. He was of opinion that a distant part of the liver tissue had been shut off earlier, and that subsequently it had taken a fresh growth, viz., that it was of the nature of a liver rest. He enquired as to the disappearance of the symptoms.

Dr. Adams replied that the symptoms had greatly improved by removal of the cause, especially those due to pressure on the portal vein.

II.—CASE OF ADDISON'S DISEASE.

BY DR. JAMES FINLAYSON AND PROFESSOR ROBERT MUIR.

E. W., æt. 53, a miner, was admitted to a surgical ward on 24th October, 1905, probably under the impression that illness was due to gall-stones. He was found to have the typical discolouration of Addison's disease, with dark spots in the

mucous membrane of mouth. There was great muscular weakness and considerable sickness, but he had been working up till three weeks before admission. He died two days after entering the hospital.

Post-mortem examination.—The body is that of a well-developed and fairly well-nourished man. There is general diffuse pigmentation of the skin surface, more marked over the face, but in no part is the tint very deep. There are a few very dark freckles over the abdominal and chest walls. The mucous membrane on the inside of the cheeks shows dark pigmentation, corresponding to the line of junction of the teeth.

Abdomen.—A cretaceous mass, measuring an inch in length by half an inch across, is present in the peritoneum, over the liver, close to the right costal margin. Round this there is much fibrous matting, and general fibrous adhesions are also present over the liver; among these adhesions there are scattered cretaceous nodules.

The *liver* is of normal size and shows some fatty infiltration; otherwise there is no lesion.

The *spleen* is rather atrophied, and there is some general thickening of the stroma. It contains one or two cretaceous nodules.

The *kidneys* are practically healthy in appearance and there are no tubercular lesions.

The *suprarenal bodies* are extensively diseased. They are much enlarged, being especially increased in thickness, firm in consistence, and irregular on the surface. The left is the larger; it is somewhat reniform in shape, and measures $2\frac{1}{2}$ inches transversely and $1\frac{1}{2}$ inch vertically; the right is more pyramidal in shape, and measures 2 inches transversely and $1\frac{1}{2}$ inch vertically. On section, it is seen that in each the substance of the gland is replaced by caseous areas surrounded by dense translucent fibrous tissue; no suprarenal tissue can be recognised. The caseous material is for the most part firm, but in places it is softened and pulpy, especially in the centre of the right suprarenal. There is also much calcareous matter irregularly disposed through both. The capsule of each gland is very much thickened, and is firmly adherent to the surrounding tissues. There is also much fibrous induration and matting around the semilunar ganglia and the various branches of the solar plexus, so that the dissection of these parts is a matter of considerable difficulty. There is no doubt that this lesion must have gravely affected the nervous

structures. (The parts were dissected *in situ* and the specimen was mounted—the ganglia and nerves were not examined microscopically.)

There is no evidence of caseation or of tubercular lesion in any of the abdominal lymphatic glands.

In the *stomach* a few minute follicular ulcers are present; otherwise it is normal. There is no ulceration or other lesion in the intestines.

Thorax.—Both pleural cavities are obliterated by fibrous adhesions and the pleural membranes show general thickening, this being more marked on the right side. About the middle of the outer aspect of the right lung a cretaceous nodule of about the size of a large pea is present in the pleural membrane. The lymphatic glands at the root of the right lung, and also some in the posterior mediastinum, are enlarged, and contain some calcareous nodules.

The lungs are emphysematous anteriorly, and there is a considerable degree of anthracosis. No tubercle can be detected in the lung substance.

The pericardium is normal. The heart is small, weighing 8 oz., and its muscle shows brown atrophy. There is no evidence of fatty change. The valves are healthy.

Microscopic examination of the suprarenals showed merely caseous material surrounded by dense fibrous tissue. No tubercle bacilli were found, and there were no tubercle follicles.

The case is fairly typical of the lesions most frequently met with in Addison's disease, viz., practically complete destruction of the suprarenals by caseo-fibrous change with a considerable amount of fibrous induration around the semilunar ganglia and adjacent plexus. As the parts, after being dissected out, were kept as a museum specimen, there was no histological examination of the nervous structures. Old tubercular lesions were present in the pleura, peritoneum, spleen, and certain lymphatic glands.

III.—PRELIMINARY COMMUNICATION ON AN OPERATION FOR THE RADICAL TREATMENT OF INGUINAL HERNIA.

By DR. A. N. M'GREGOR.

Dr. M'Gregor remarked upon the great variety of radical cures for hernia. He said that the continued publication of new methods was a sign that no single method was sufficient to treat with every variety or degree of inguinal hernia. He

discussed the reasons why the obliteration of a hernial aperture was the subject of so many different devices, and held that the many flap-splitting devices were not warranted in the great majority of cases. He pointed out that a common cause of failure of radical operations lay in the separation of the layers of areolar tissue covering the fasciæ, and insisted that, as the tendons and fibrous fasciæ derived their blood-supply, lymphatic connections, and nerve-supply from this areolar tissue, it was a mistake to separate these structures. Replying to the obvious objection that these flap-splitting operations were very successful, he pointed out that the displaced fasciæ were kept in position by resistant sutures for a long time, in order to allow of union, and that this length of time was necessary in view of the impaired vitality of the fascia, which had been deprived of its blood-supply. The operation which he described did not require the separation of the fasciæ, and he claimed that by this means the duration of the operation was shortened, the period of post-operative treatment shortened and the patient restored to work at an earlier date than usual. His patients were allowed to sit up in fourteen days, and were dismissed in three weeks.

The operation was discussed by *Drs. Adams, Knox, and Rutherford.*

(The report of this Meeting will be continued in our next issue.)

GLASGOW NORTHERN MEDICAL SOCIETY.

A MEETING of the Society was held on 6th November, 1906—*Dr. J. A. C. Macewen* in the chair.

DR. JOHN DONALD showed a young woman with a large capillary nævus involving the entire side of face and neck. He had been treating it with *x*-rays, and under their influence the parts exposed had almost entirely lost their port wine colour. There was no scarring.

Dr. Donald also showed a young woman who had had a copious growth of hair on cheeks and chin. The cheeks had been exposed to the rays, with the result that the skin was absolutely free of hair, and had remained so for two years.

DR. A. J. BALLANTYNE showed a series of *x*-ray photographs, demonstrating the presence of foreign bodies in the orbit. He described the method of localising the bodies, and the

influence of such photos in the prognosis and treatment of such cases.

DR. J. A. C. MACEWEN showed a sebaceous horn of the scalp, which he had removed from a woman.

DR. R. G. INGLIS narrated a case of acute inversion of the uterus coming on a few hours after labour, and unaccompanied by shock or hæmorrhage, but causing very severe labour-like pain. Restitution took place on very slight upward pressure.

DR. A. N. McLELLAN gave notes of two cases where spontaneous replacement took place in the pregnant retroverted uterus.

REVIEWS.

The Practical Medicine Series, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of GUSTAVUS P. HEAD, M.D. Chicago: The Year Book Publishers. 1906. Authorised Agents for Great Britain: G. Gillies & Co., 28 Gibson Street, Glasgow.

CONCENTRATION is the order of the day. It affects the literary world, manifesting itself in different encyclopædias, dictionaries, and snippety extracts. The output of general literature is so great that the bewildered reader, with only occasional free evenings, is glad of getting even a nodding acquaintance with the productions of the past ages and the present. The same conditions animate medical and surgical activity; periodicals are so numerous that the busy and panting doctor often satisfies himself with the journalistic articles which, either on account of their authorship or the subjects discussed, appeal to him most directly at the time. An opening is thus given to "Retrospects," "Annals," "Yearly Records," and books with similar titles, which seem to supply a felt want, and therefore find a market. The "Practical Medicine Series," comprising ten volumes of the year's progress in medicine and surgery, of which series five volumes will be referred to in this notice, is being offered to the profession for two guineas; while any volume can be had separately at a slight increase of price.

Volume I: General Medicine, edited by Drs. Billings and

Salisbury, deals, *inter aliu*, with tuberculosis, pneumonia, syphilis, asthma, cardiac troubles, blood diseases, general infectious disorders, and affections of the kidneys and glands, and it is freely illustrated. Quotations and references are necessarily numerous, but pleasant reading is not interrupted. The introduction of one hundred topics indicates that the editors have aimed at comprehensive usefulness, albeit typhoid and other fevers are left to a succeeding volume.

Volume II: General Surgery, edited by Dr. John B. Murphy, is a thicker book than vol. i, and is marked with a true sense of the increasing importance, and the fair limits, of operative surgery. Much attention is given to radiotherapy, tuberculosis of bone, cerebral tumours, fractures, and abdominal diseases and injuries. We have not had cause to share in the fear expressed regarding saline irrigation of the general peritoneal cavity after an operation. This volume is illustrated, and has an index of fifteen pages, making it easy for reference.

Volume III: issued under the divided editorship of Drs. Wood, Andrews, and Gustavus Head, is devoted to the disorders of the Eye, the Ear, Nose and Throat, and takes up many important and obscure topics. The general practitioner will here find not a few useful hints, and the book will be a safe guide to him to consult regarding points where an expert opinion is desirable. There is a general index to the three departments, and some pathological conditions and operating instruments are depicted.

Volume V: Obstetrics, discusses many features in pregnancy, difficult labour, the puerperium, and injuries and diseases of the newborn babe. There are almost no references to British obstetricians. Illustrations of uterine dilators and other instruments are given. Dr. Joseph de Lee, with the assistance of Drs. Rochler and Stowe, is the editor.

Volume VI, like the first volume, deals with General Medicine, and is compiled by the same editors. Gastric troubles, enteric fever, and other abdominal complaints, have much attention. In the treatment of enteric the routine administration of milk is excluded, and prepared beef-juice and white of egg, with sterilised water and a few drops of hydrochloric acid, recommended.

Unlike Sydney Smith, who claimed for a "Review" that its object is "to make men wise in ten pages, who have no appetite for a hundred pages; to condense nourishment, to work with pulp and essence, and to guard the stomach from idle burden and unmeaning bulk," the chief editor of these volumes, Dr. Gustavus P. Head, modestly says, "It is not the

province of this series to quote from every good article of the year, but to so choose from the good material that no valuable thought of the year shall fail of presentation."

We are content with this explanation of the plan of selection, and shall conclude meantime by saying that these volumes, in their handsome crimson bindings, will be not only ornamental on the doctor's shelf, but may prove eminently useful for reference and consultation.

A Short Practice of Medicine. By ROBERT A. FLEMING, M.A., M.D., F.R.C.P.E., F.R.S.E. London: J. & A. Churchill. 1906.

THERE are now so many excellent text-books on the practice of medicine for the student to choose from that one cannot but be somewhat critical of a new-comer; for one knows that it also must reach a standard of excellence if it is to have any continued existence. But Dr. Fleming claims that "there are few small-sized manuals that fill a place in the library which the present volume is intended to occupy"; and in this way, as well as on account of its merits, we feel confident that this work will in time come to take its place among the other well-known text-books of medicine.

The general arrangement of the book calls for little comment, as it is that in use with most teachers of the subject. But the descriptions of the symptomatology and pathogenesis of the various diseases are clearly and fluently set forth. At times, however, we note a lack of precision in certain statements, which may give trouble to the junior student. For example, in describing the rash of small-pox, we are told that on "the tenth to the eighteenth day the pustules dry up," but it is not mentioned whether it is the tenth to the eighteenth day of the disease or of the eruption. Again, in dealing with pneumonia, we are told that resolution "may be safely completed in six to nine or eleven days." But it is not clear if this dates from the rigor, from the state of engorgement, or from that of red or grey hepatisation, or if it applies to the stage of resolution only. On the next page (59), ninth line from the foot of the page, surely the word "so" should be omitted. On p. 177 we are told that "Calmette finds that the antivenom obtained by using venom of the cobra de capello is capable of counteracting all venoms, including that of scorpions." This, however, has been so sufficiently denied by the most recent workers on the

subject of snake venoms as to make the statement inadmissible in the students' text-book.

The section on diseases of the nervous system we regard as the best in the book. It is very complete and up to date, and if we have a fault to find with it, it is that it contains too much, that it is too condensed. The illustrations, too, in this section add greatly to its elucidation.

Of the book as a whole we have a good opinion, and we predict for it a wide circulation.

Third Treatise on the Effects of Borax and Boric Acid on the Human System. By DR. OSCAR LIEBREICH. London: J. & A. Churchill. 1906.

THIS is essentially a hostile criticism of the report of Dr. H. W. Wiley, Chief of the Bureau of Chemistry of the U.S. Department of Agriculture to the Secretary of Agriculture. Undoubtedly Dr. Liebreich points out many possibilities of fallacy in the conduction of and deductions from the experiments carried out by Dr. Wiley; but such destructive criticism is always easy, and Dr. Liebreich advances no decisive reasons to show why Dr. Wiley's conclusions are not as accurate as any which may be drawn from experimental evidence in general. On an impartial consideration of the pamphlet the evidence advanced by Dr. Wiley may be considered to outweigh Dr. Liebreich's consistent negatives.

The Climate of Lisbon and of the two Health Resorts, Mont Estoril and Cintra. By DR. D. G. DALGRADO. London: H. K. Lewis. 1906.

"THERE can be little doubt," says a living author, "that among the predisposing causes of ailment, climate must be taken into account. The exact position on the earth's surface occupied by individuals or nations implies a certain risk of special diseases on the one hand, or escape and immunity from disease on the other. There is little doubt that climate exercises a prominent and potent effect in modifying disease."

The belief in the influence of climate is universal, and, consequently, physicians are usually ready to consider any suggestion for a change that may benefit their patients.

Dr. Dalgrado writes with a vigour of pen, a knowledge of English literature and ways, and a minute acquaintance with his subject, general and topical. He establishes a good plea for these two health resorts. The season at Mont Estoril is from 15th November to 15th March. The rainfall is slight, the atmosphere is dry, and the general attractions of the country are many. No consumptives need apply at the hotels, for under Portuguese law phthisis is notifiable, and the hotelkeeper is obliged to disinfect apartments vacated by a consumptive, and to keep reserved linen and crockery for any unfortunate patient. Being out of practice for six months, our author's remarks are not those of a special pleader; indeed, he is both instructive and interesting, and, as originally delivered, the paper was well received at the recent Lisbon Medical Congress.

Traité d'Hygiène. Fasciculus I: Atmosphère et Climats.
By JULES COURMONT and CH. LESIEUR. Paris: J. B. Baillière et Fils. 1906.

THIS is the first fasciculus of a treatise of hygiene which is to be composed of twenty fasciculi in all, the treatise being under the editorial direction of Professor Brouardel and Dr. E. Mosny. In a joint preface the editors indicate the scope of the individual parts of the treatise, each part to be self-contained, and to be sold separately if desired.

This fasciculus on atmosphere and climates is from the pens of the writers above-named, the former writer dealing with atmosphere and the latter with climatology. M. Courmont divides the discussion of his subject under the following heads:—(1) The chemical properties of the air, (2) the physical properties, (3) the contained inert particulate matter, and (4) the living corpuscular matter, including micro-organisms and moulds.

After full discussion of these, he devotes some attention to the methods for artificially regenerating the air of confined spaces, in which, for long, natural respiration could not be sustained. He describes fully the apparatus of MM. Desgrez and Balthazard, in which by the decomposition of sodium dioxide (NaO_2) by water oxygen is liberated, and the carbon dioxide given off from the lungs is absorbed by the sodium oxide which remains. This apparatus has been devised for use in submarine vessels, and on the smaller scale for firemen, miners, sewer-men, and others whose work upon occasion

compels them to enter into irrespirable atmospheres. A figure of the apparatus is given. But little attention, however, is paid to the subject of compressed air, as in caissons, a subject which must be deemed of no little importance in these days of daring engineering schemes.

The action of light as a germinicidal agent receives due attention, but mere references are made to the Finsen light and the Roentgen rays. Regarding the influence of electrical states of the atmosphere on human life, the author very properly declares that practically nothing is known. The subject of production of smoke and fumes, relative to their prejudicial effects on vegetation and human life, fog-production, and light-destruction, is duly discussed. The author declares this prejudicial action to be mainly due to the corrosive gases and formic aldehyde produced by the consumption of coal and wood, but he omits any mention of arsenical gases from the arsenic which is present in most coal in relatively small percentages in combination with sulphur. Recent investigations in this city and neighbourhood indicate that these play a more important part in the destruction of vegetation than has hitherto been conceived. Like many other writers of late, the author urges the clamant need in industrial communities for the general adoption of means of smoke-consumption, in order to abate what is a serious menace to healthy and comfortable existence.

Speaking of the pathological rôle played by inorganic particulate matter in the air, he refers to anthracosis, pneumocosis, and, among other conditions, to "*la maladie des garrister*." What the author evidently alludes to as "*garrister*" ought to be "*gannister*" or "*ganister*," a dense, siliceous stone which is quarried in certain parts of England, and which is ground into powder for the making of bricks which have to withstand intense heat. The grinding of this stone produces on the workers serious disease of the lungs, due to the sharpness of the particles of silica.

Dealing with the plague of dust of streets and roads, due mainly in recent years to the traffic of automobiles, attention is given to different methods which have been invented to minimise it.

Climatology is from the pen of M. Lesieur, who is head of the Bacteriological Institute of Lyons. Like all climatologists, he adopts the classification of climates which appeals to him, although he says, very fairly, that if too rigorous attention be paid to any one classification, errors and difficulties are bound to emerge. Starting from temperate climates, he brings

under review maritime climates, climates of altitude, warm, torrid, cold, and polar climates, relative to their meteorological characteristics, their influence on man in health and disease, and their hygienic and prophylactic applications. Temperate climates, he says, are to be found between the isothermal lines $+15^{\circ}$ and $+5^{\circ}$, the influence of the Gulf Stream affecting the boundaries of the latter isotherm; warm climates, between the isotherms $+25^{\circ}$ and $+15^{\circ}$; torrid or tropical climates, between the equator, 28° , and the isothermal line $+25^{\circ}$; cold climates, between $+5^{\circ}$ and -5° ; and polar climates, between -5° and -15° . Under each of the above classes of climate there is given a geographical distribution of localities, and a discussion of the physiological and pathological influences on man. Such a classification of climates, it will be observed, is based on lines of equal temperature relative to place, but takes no regard to time, in which respect it fails as a complete classification.

Acclimatisation is discussed with reference to colonisation and the progress of nations. While it cannot be said there is anything new in the book, a great deal of information has been succinctly and clearly brought together in the 122 pages of text in well-ordered arrangement. It will prove a useful work.

Diabetes Mellitus: Its Pathological Chemistry and Treatment, being Part VII of Several Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition.
By PROF. DR. CARL VON NOORDEN. Authorised translation under the direction of BOARDMAN REED, M.D. Bristol: John Wright & Co. 1906.

THIS is one of the most important and interesting of this valuable series of clinical treatises, and none the less so, perhaps, though it contains a good deal that is theoretical, and a good deal that will not be accepted by every student of the great problem of the origin of diabetes. The author maintains that phloridzin-glycosuria is undoubtedly due to increased permeability of the kidneys to sugar, and that the sugar in the blood in this condition is accordingly below the normal; while in every other kind of glycosuria, whether spontaneous or experimental, hyperglycæmia is present, and is the immediate cause of the glycosuria. He accepts the doctrine of the glycogenic function of the liver, and regards the peculiarity of the diabetic constitution as consisting in the loss of the capacity

of the liver, muscles, and, perhaps, the glands, to take the circulating glucose from the blood, and to store it as glycogen. He says, moreover, that the natural food of the tissue cells is not glucose, but glycogen, whence it follows that the power of burning off the carbohydrates is lost in diabetes. The cells are bathed in a superfluity of sugar, and yet are hungry for sugar because they cannot use it.

With regard to the connection between the pancreas and diabetes, our author puts forward the hypothesis that that organ supplies to the blood either a ferment which favours the process of polymerisation in the formation of glycogen, or an antiferment which prevents too rapid destruction of glycogen.

The later sections of the work deal with the acetone bodies, other changes in metabolism in diabetes, the general course and prognosis of diabetes, and the treatment of diabetes. Food tables are given in an appendix. There is no index, but the table of contents at the beginning is very well arranged.

We can heartily recommend this book to the profession. The reputation of the author should secure the most careful attention for its contents, and we have pleasure in testifying to the excellence of the English translation.

German Grammar for Science Students. By W. A. OSBORNE, M.B., D.Sc., and ETHEL E. OSBORNE, M.Sc. London: Whittaker & Co. 1906.

THIS little volume is designed to meet the needs of students of science in universities and technical colleges who have little or no knowledge of German, and yet require to consult or read German scientific papers and treatises. If such students are unable to take a regular course of German they may safely be recommended to study this grammar. We have pleasure in reporting upon it favourably.

Transactions of the Medico-Legal Society for the Year 1904-1905. Vol. II. London: Baillière, Tindall, & Cox.

QUITE a number of interesting papers are collected in this volume. "An Obscure form of Alcoholism involving irresponsibility," by T. C. Shaw, M.D., is a valuable contribution to a very difficult subject, as shown by the somewhat diverse

views held by those taking part in the discussion after the paper.

"Definitions of Accident, Accidental, Accidentally," by Stanley Atkinson, M.A., M.B., gives a list of decisions which may be helpful in many doubtful cases.

"The Proposed Sterilization of Certain Degenerates," a discussion opened by Dr. Robert Reid Rintoul, suggests voluntary vasectomy in the case of sane degenerates of certain types, and spermectomy in the case of the insane. Of the members of the Society who took part in the discussion the majority were against the remedy suggested.

"A Case of Disputed Fracture of the Clavicle," by J. G. Garson, M.D., shows the difficulty in some cases of forming a definite opinion in certain obscure cases, although the use of the x-rays cleared up the point thirty-four weeks after the accident.

Among other articles "The Law relating to the Responsibility of the Criminal Insane," by A. D. Cowburn; "Professional Secrecy and Privileged Communications," by A. G. Bateman, M.B.; and "On Suicide," by William Wynn Westcott, M.B., are the most noteworthy.

The Combined Treatment of Diseases of the Eye. By HERBERT BURNHAM. London: H. K. Lewis. 1906.

THIS is a book which we scarcely like to criticise, because its standpoint is so entirely different from ours. In his preface the author cites Lister's ideas as being a sort of model for his own. He says—"For a long time it has been the custom of our teachers to devote themselves to the study of the symptoms, pathology, diagnosis, &c., of disease, and to give to the treatment, that with which the people are the most concerned, a superficial notice." Again, he says in his preface—"Lord Lister by his discoveries gave the first great impetus to the idea that by devotion to the cure of disease were we to mount up to our true level in the body politic." The author seems not to recognise the fact that if ever a man tried to found treatment upon what ought to be its proper basis, a correct pathology, Lister was that man. His outstanding merit seems to us to have been that he was the first to try and explain pathological processes on a biological basis. In his work he was just as far removed from the empiric as it was possible for any man to be. It certainly will be news to most

men who have read Lister's papers in the *Philosophical Transactions* and elsewhere to learn that he disregarded pathology, and set himself to cure diseases. That, however, is Dr. Burnham's attitude towards ophthalmic practice. There is no need to give much attention to symptoms, much less to the pathology of disease. The one thing of importance is its treatment, and, fortunately, that is simple enough. Almost every form of malady, from conical cornea to sympathetic ophthalmitis, will yield under the magical influence of the hypodermic injection of pilocarpine, combined with the internal administration of iodide of potassium and mercury.

A Treatise on Diagnostic Methods of Examination. By PROF. DR. HERMANN SAHLI. Edited, with Additions, by FRANCIS P. KINNICUTT, M.D., and NATH'L. BOWDITCH POTTER, M.D. Authorised Translation from the Fourth Revised and Enlarged German Edition. London: W. B. Saunders & Co. 1906.

THIS is a remarkable work, which deserves careful study by all who are interested in the scientific study of medicine. Even the preface, which is a long one, is rather a remarkable piece of work. The author tells us that the present volume is not a mere compilation; but, on the contrary, is based almost throughout on his personal experience. The work, therefore, is one which ought to be often quoted, but this is not the case; because, as Prof. Sahli supposes, it is generally assumed nowadays that text-books, apart from large systems by many writers, are mere compilations which do not contain anything new, the tendency being for all actually new matter to find its way to periodical literature.

Fortunately, however, this great treatise by the Bern professor has commended itself to the medical profession, and four German editions have been issued, viz., in 1894, 1899, 1902, and 1905. Some brief additions have been made to the English edition by the American editors, and the book, which was printed in September, 1905, had to be reprinted in February of the present year (1906). The scope of the work is ambitious, and is only indicated in the faintest outline by the headings which we take from the table of contents:—Introduction; General condition of the patient; Development and state of nutrition; Examination of the skin; Determination of the body temperature; Character of the respiration;

Character of the voice under pathologic conditions; Cough; Palpation, sphygmography and sphygmometry of the arterial pulse; Visible phenomena of motion in the vessels; Percussion; Auscultation; Palpation of the lung and pleura; Inspection and palpation of the heart region; Inspection and palpation of the abdomen; Diagnosis of individual valvular lesions, of aortic aneurysms, and of pericarditis; Graphic expressions for the physical signs in pulmonary cases; Examination of the stomach and stomach contents; Examination of the intestine and fæces; Urinary examination; Examination of the sputum; Examination of the blood; Laryngoscopy, tracheoscopy, and autoscopy of the larynx and trachea; Rhinoscopy; Ophthalmoscopy; Exploratory punctures and harpooning; Röntgen ray examinations; and Examination of the nervous system. Including the very extensive index, which, of course, is a most important part of a work of this kind, the volume extends to more than one thousand pages.

It is obviously impossible in a short review to give an account of the different portions of a great work like this, which covers so much ground. But we can confidently recommend this book to every physician who wishes to do advanced work in clinical medicine. He may turn to it not only for the descriptions of the methods of diagnosis which he may employ, but also for discussions of the explanations of clinical phenomena. It should occupy a prominent place in every clinical laboratory, and should continue to enjoy the success it has already achieved.

The Operating-Room and the Patient. By RUSSELL S. FOWLER, M.D. London: W. B. Saunders Company. 1906.

THE dedication of this volume is peculiar; it announces the appearance of "a much larger volume upon post-operative treatment."

The text is arranged in seven chapters, dealing with the following subjects:—The operating-room and its personnel, the instrument and supply-room, anæsthesia, the patient, general considerations in after-treatment, and, lastly, lists of instruments and dressings commonly employed.

The two chapters on the instrument and supply-room are extremely good. The different formulæ for iodoform gauze are given fully, but only No. 1 states how much gauze the constituents will impregnate. Similarly, there are various formulæ

for the preparation of catgut, but no mention is made as to the time which is required for the absorption of a given catgut.

The chapter on anæsthetics is well done, and that on the preparation and after-treatment of the patient contains many useful hints.

The details of procedure in different clinics vary within wide limits, but we think that Dr. Fowler's book is one which will be found useful by a large circle of readers.

*Ninety-second Annual Report of the Glasgow Royal Asylum,
Gartnavel, for the Year 1905.*

THIS report, which is on the lines of previous years, gives Dr. Oswald's annual report along with other information relative to the hospital. The statistical tables are interesting, more especially No. 12, on page 27, dealing with the occupation or social position in the admissions during the year 1905. Among 60 males those returned as of "no occupation" amount to 3, while of 59 females those under the same heading number 20. The reports of Commissioners Fraser and Macpherson on the working of the institution are entirely satisfactory and call for no comment.

Public Health Legislation and Model Bye-Laws. By MARTIN ELLIOTT, Barrister-at-Law, and GILBERT ELLIOTT, M.R.C.S. Eng. London: H. K. Lewis. 1906.

THIS little volume has been "specially prepared for the Diploma of Public Health," and is dedicated to Dr. B. Anningson, Medical Officer of Health, Cambridge. It consists entirely of a synopsis of the Public Health Acts and other sanitary laws and regulations applicable to England and Wales. To this extent it has a certain value, which is added to by a number of cases illustrative of certain points which have been decided at law. Chapter VII, dealing with model bye-laws, is perhaps the most valuable, dealing as it does in a concise manner with the framing of such regulations. The work will prove a handy book of reference on the subjects for students preparing for the D.P.H. of the various examining bodies in England.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

M E D I C I N E.

By WALTER K. HUNTER, M.D., D.Sc.

Case of Epidemic Cerebro-spinal Meningitis of Twenty Hours' Duration. By John M'Crae (*Montreal Med. Jour.*, August, 1906).—The patient, a man, aged 23, was one of three cases, all living in the same house, all of whom sickened with the same illness within the same week. One was a child, who died after a few days' illness. The second, a man of 30, recovered from the acute symptoms, but died of chronic meningitis two months later. The third, the patient under consideration, was quite well till the day of his illness. That morning he ate a good breakfast, and began work at 8 A.M. At 8.30 A.M. headache was complained of, and this rapidly became severe. At 9 A.M. patient felt feverish, and had a rigor. The fever increased during the day, and by the evening there was wild delirium. The face was cyanotic, and petechiæ appeared on the face and over the body and limbs. There was also generalised hyperæsthesia. At 3 A.M. delirium passed into coma, and the patient died within twenty hours from the initial symptom. Lumbar puncture yielded a turbid fluid, which contained a very large number of intra- and extra-cellular diplococci, which ultimately were shown to be meningococci.

At the *post-mortem* examination the brain and the membranes were found to be markedly congested, but there were no appearances of inflammatory exudation. Smears from the pia showed numerous intra-cellular and free meningococci. The pharynx, larynx, trachea, and bronchi were greatly congested, and there was œdema of the lungs, but no consolidation. The heart muscle showed cloudy swelling, and petechiæ were present on the epicardial surface. The stomach mucosa was dark in colour and œdematous, and there were sub-mucous hæmorrhages. The spleen was small (195 grms.), and dark-red in colour. Small hæmorrhages were found in several of the internal organs. Microscopic examination of the tissues yielded nothing of note in addition to the appearances just described.

The meningococcus was found in the pericardium, ethmoidal cells, meninges, and heart blood, so that the infection was in reality a septicæmia.

Case of Angio-Neurotic Œdema. By John Atkins (*West London Med. Jour.*, July, 1906).—The patient was a law student, aged 23. He had been reading hard for some examinations, and during this time suffered from symptoms of dyspepsia. This continued for about three months when the attacks of œdema first made their appearance. The first came on on 3rd June, 1905. The patient had gone to bed about 1 A.M., feeling quite well, but awakened at 7 A.M. to find the scrotum considerably swollen. The swelling increased during the day till most of the penis was also involved. Things remained like this for twenty-four hours, then the swelling commenced to disappear, having entirely gone within the following three days. Eight days later a second swelling was seen on the anterior aspect of the right fore-arm, and the day after on the front of the left arm. These swellings lasted unchanged for two days, when they began to disappear, having lasted in all five

days. A week later, again there was a severe pain complained of in front of the right ear, and a few hours later swelling appeared in the right eyelid, which gradually increased till the patient could scarce see out of this eye. The next morning the other eye was also affected. Then the throat became swollen, so that swallowing was a difficulty. Next the swelling invaded both cheeks, forehead, lips, chin, and neck. The swelling remained for a week, and gradually disappeared; but during this time the patient was confined to bed in a state of nervous prostration, and he had acute dyspepsia and twitchings in the muscles of his limbs. This was the worst attack the patient had; but at regular intervals, ranging from a day to a month, swellings would appear on face, neck, back, sides, perineum, scrotum, penis, buttocks, thighs, hands, and feet. The swellings usually reached their height in from six to twenty-four hours, to disappear again in from two to five days. Sometimes there were premonitory sensory symptoms, most often there were none; but during the attack tinglings and neuralgic pains were sometimes complained of.

The areas of oedema were usually from 3 to 4 inches in diameter, and were raised a quarter to half an inch above the surrounding skin. They were firm to the touch, and did not pit on pressure. These oedemas have continued coming out now for twelve months, in spite of the fact that the patient has been off work, and travelling about most of that time. The general health has, on the whole, remained good, but from time to time there are attacks of dyspepsia. Most often it is one of these attacks that seems to determine the oedema, but sometimes exposure to cold wind, or other irritant, may be followed by the oedema. The patient is of a nervous temperament, and he has a definitely neurotic family history; but no organic lesion could be found in the nervous system to account for the symptoms.

Case of Congenital Heart Disease. By O. J. Kauffmann (*Birmingham Med. Rev.*, August, 1906).—The patient, a boy, aged 11, first came under observation when 8 years old. His appearance was typical of congenital heart disease. The face and extremities were cyanotic, and the finger ends bulbous. The heart was not enlarged, the apex impulse being in the fourth interspace within the nipple line. The pulse ranged from 70 to 80 per minute. A systolic murmur was heard all over the precordial area, but loudest at the pulmonic orifice. The second sound was pure. The lungs showed no abnormality, and there was no evidence of fluid in the abdominal cavity. The general condition of the patient changed little till some months before death, when an otorrhoea developed, and, later, there were signs of a cerebral abscess, from which the patient died.

Post-mortem examination.—Excepting the cerebral abscess, the heart alone was of interest, as all the other organs were normal. The heart was not enlarged, and the pericardium was non-adherent. The aorta, which was large and well formed, took origin from the right ventricle, and the pulmonary artery, which was also well developed, from the left ventricle. The foramen ovale was patent, appearing as a slightly open slit, 1 inch in length, and admitting the tip of the thumb as far as the base of the nail. The auricles were otherwise normal, the right receiving the superior and inferior vena cava, and the left the pulmonary veins. The ductus arteriosus was not patent, and there was no other abnormality of the large vessels or their branches. The wall of the right ventricle was thick, as the left should be. The left ventricle had thinner walls than the right, but thicker than the normal right ventricle in a boy of corresponding age. The cavity of the right ventricle was not enlarged, and it had the arrangement of musculæ papillares characteristic of a right ventricle. The cardiac valves were normal, and showed no signs of endocardial deposits.

The author explains the circulation in this case by supposing a double current passing through the foramen ovale—one current from right to left auricle, and the other from the left to right. For the aerated blood coming back from the lungs into the left auricle must pass into the right auricle before it can get to the right ventricle, so as to be driven into the aorta and systemic circulation.

And, on the other hand, if venous blood were to go to the lungs, it must pass from the right auricle into the left auricle before it can get to the left ventricle. Probably much of the cyanosis in the case was due to the venous blood from the vena cava being mixed with the aerated blood from the left auricle, and both going to the aorta.

SURGERY.

By JOHN PATRICK, M.A., M.B.

Traumatic Hæmorrhage into Left Lobe of Cerebellum treated by Operation, with Recovery. By Ballance (*Surgery, Gynecology, and Obstetrics*, August, 1906).—The patient, a boy of 12, was admitted into hospital four years ago suffering from severe headache, giddiness, vomiting, unsteadiness in gait, and some weakness in the left leg, these symptoms having been present for a fortnight. There had been no fits, but drowsiness had been present for two days. The only history obtainable was that two months previously he had fallen on his head off another boy's back; the head struck the ground on the right parietal eminence. He was stunned and his nose bled, but he walked home without assistance and next day he was up and about as usual.

When admitted he was in a condition of "cerebral irritation," lying curled up in bed on his left side, with hips and knees flexed, eyes tightly closed, and resented being spoken to or interfered with in any way. Any attempt to retract the neck appeared to cause much pain. Temperature was 100° F.; pulse, 80, and regular. The pupils were equal and of medium size, reacting well to light and accommodation; there was no ophthalmoplegia, but well-marked optic neuritis. There was great difficulty when he attempted to walk; he took short unsteady steps, reeling from side to side and dragging the left foot; there was a tendency to fall backwards and to the right. There was distinct weakness and some inco-ordination of the left arm, and weakness of the left leg, but the face was unaffected. The left knee-jerk was a little exaggerated, the right diminished; there was no ankle clonus. The cutaneous reflexes were present and equal; there was no anaesthesia. Vomiting was frequent.

Upon trying to sit up he complained of severe frontal headache and giddiness. When giddiness was present the objects in the room appeared to move across from left to right, and he himself seemed to be going in the same direction. This observation is in accordance with the experience of others that this arrangement of the movement prevails in intracerebellar lesions, whereas in extracerebellar lesions the sense of personal movement is in the opposite direction to that of the external objects.

He was observed in a medical ward for ten weeks; some facial paresis appeared on the left side, lateral nystagmus to the left developed, and there was paresis of the conjugate movements of the eyes to that side; there was no squint. Sight became progressively worse, and finally he was unable to read half-inch type at 15 inches.

Many of the symptoms improved—headache, giddiness, and vomiting almost entirely disappeared, but the weakness of the limbs on the left side and the difficulty in walking remained.

Five months after the injury a large opening in the bone over the left lobe of the cerebellum was made, a flap $2\frac{1}{2}$ inches by $2\frac{1}{4}$ inches being raised. The dura was opened at the second sitting, and on thrusting the little finger into the substance of the lateral lobe to a depth of $1\frac{1}{2}$ inch, a soft, smooth, rounded body was felt. This proved to be blood-clot in which decolorisation was beginning. The whole of the clot was removed, and no evidence was found that the case was one of hæmorrhage into a new growth. The cerebellum then receded to a depth of three quarters of an inch.

The boy made a slow but uneventful recovery. Three months after the operation he could walk without unsteadiness, and his sight was rapidly improving. At the present time (four years after the operation), the only symptoms are slow lateral nystagmus to the left, the side of the lesion, and a little inco-ordination in the left arm on intentional movement.

The points of importance in the case are (1) that hæmorrhage into the brain may simulate a new growth; (2) that paresis of homo-lateral limbs, weakness of conjugate movements of eyes, and lateral nystagmus to the same side may be valuable localising signs of cerebellar disease; (3) that there was a latent period of six weeks from the accident to the onset of the symptoms.

Elephantiasis of Both Legs Surgically Treated. By Philip F. Rogers (*Surgery, Gynecology, and Obstetrics*, September, 1906).—The author gives details of a case of a woman whose disease began with thickening of the right foot at 12 years of age. It progressed gradually till at 26 years, when these operations were performed, the whole of both lower limbs up to the gluteal fold was involved, so that the thighs measured 38 and 39 inches in circumference, the calves 29 and 31 inches. The upper part of the body was thin.

Repeated blood examinations by day and night failed to show filaria. A peculiar point in the etiology of the case is the fact that attacks of a mild erysipelatous inflammation in the legs regularly accompanied the menses during the earlier years of the disease, and still occur at irregular intervals.

The surface appearances were of enormous compact masses of thickened skin, boggy above the knees, hard and gristly below, with rough warty surfaces and deep crevices.

In October, 1901, a large mass was removed from the inner side of the left thigh, and two weeks later a similar operation was performed on the right thigh, reducing the circumference of each by no less than 14 and 15 inches respectively. Three months later, and again a year after, she wanted more trimming, and at one time ten large segments were removed, with, it is true, almost fatal results to the patient, though she did finally rally.

The aim at first was simply to remove large wedge-shaped pieces with long axes parallel to the bones. But in a later operation numerous excisions were made at right angles to the bones with the idea of interrupting the big blood and lymph channels. The latter proved the more effective method. Healing was almost invariably rapid and without sepsis. It is now two and a half years since the last operation, and the woman's condition is, on the whole, satisfactory; in fact, she is clamouring for more operations, and the author sees no reason why she may not be kept "trimmed down" and get along indefinitely with a fair degree of comfort. She has had in all ten operations, and she insists that she feels an improvement in condition after each.

MATERIA MEDICA AND THERAPEUTICS.

By ROBERT FULLARTON, M.A., M.B., F.F.P.S.G.

Treatment of Heart Disease by Baths and Exercises (*Journal of Balneology and Climatology*, April, 1906).—This article includes a short paper by Alexander Morrison, M.D., upon the present position of the treatment of heart disease by baths and exercises, read before the British Balneological and Climatological Society, and reports a discussion of the subject by members of the Society.

According to Dr. Morrison, the cases of heart disease which the majority of English physicians consider suitable for treatment by baths, exercises, and climatic conditions, are such only as can travel safely for a more or less

considerable distance, and are calculated as safely to return home. These cases he groups as follows:—

1. Those which have not passed the meridian of life, and have a weakness of the myocardium, moderate in degree, with or without irregularity of action, and *without* organic valvular lesion, or organic disease of other organs, and which especially are free from organic disease of the kidneys.

2. A similar degree of disordered action of the myocardium *with* organic valvular disease other than aortic reflux and the rarer organic diseases of the right side of the heart, with the exception of milder forms of congenital cardiac malformation, which are free, so far as can be determined, from extra-cardiac adhesion.

3. Older patients with myocardiatic debility without pronounced arteriosclerosis, without organic valvular disease, without disease of organs other than the heart, and without the symptoms of *angina vera*.

The Treatment of Arthritis Deformans with the Roentgen Rays (*Journal of the American Medical Association*, 19th May, 1906). By Drs. Anders, Daland, and Pfahler. In this preliminary report details are given of two cases of arthritis deformans treated by exposure of the affected joints to the x-rays, together with local massage and passive movements, and the internal administration of sodium iodide.

In one case, in order to rule out any constitutional effect, only the joints of the wrist, elbow, and shoulder on the left side were selected for x-ray treatment, and it was found that at the end of a month these joints had practically recovered, while the joints of the lower extremities, which had not been exposed to the rays, showed no change.

In the second case treatment of an affected knee-joint by the x-rays, massage, and passive movement resulted, after five weeks, in marked improvement.

The writers' view is that the rays stimulate metabolism within the joints, and that this should be taken advantage of, and massage and passive movement added to assist in removal of the exudate.

Atropine and Strychnine combined: a Specific for Sea-sickness. By Brig.-Gen. Girard, U.S.A. (*Journal of the American Medical Association*).—This report, presented to the International Congress at Lisbon, in April, is based upon Dr. Girard's experience in the treatment of sea-sickness over a period of eighteen years.

His observations show that in almost every instance a hypodermic injection of $\frac{1}{15}$ of a grain of atropine sulphate with $\frac{1}{5}$ of a grain of strychnine sulphate is readily borne by adults, and as a rule causes no disagreeable sensation. This may be taken at the commencement of a voyage, or when the sea begins to be rough. The dose is at times not sufficient with persons refractory to the action of belladonna, and may have to be repeated once or twice at hourly intervals till symptoms of atropinism appear. As a rule one dose is sufficient for the whole voyage, apparently overcoming the disturbance till the voyagers acquire their "sea-legs." It is suggested that the *rationale* of the treatment may be found in the stimulating effect of the atropine on the circulation in the brain, while the strychnine causes a similar action through the spinal cord on the respiration.

To the article are added extracts of reports made by medical officers and patients, the consensus of opinion being that the remedy is a specific.

The "Home Sanatorium" Treatment of Consumption. By Joseph H. Pratt, A.M., M.D. (*Johns Hopkins Hospital Bulletin*, May, 1906).—The writer states that having become acquainted with the methods used by Dr. C. L. Minor, of Asheville, N.C., in carrying out the hygienic-dietetic treatment of phthisis among private patients outside of a sanatorium, he was convinced that the same system could be carried out in the homes of the poor, even in a crowded city.

The financial support of a church enabled him to make the experiment. The organisation is known as a "Tuberculosis Class," or "Home Sanatorium." No applicant for membership is accepted until the clinical diagnosis of phthisis is confirmed, either by finding the tubercle bacilli or by a positive tuberculin test. The applicant has to promise to give up all work, to live the out-of-door life, and to obey all the rules of the class. On his joining the class a clinical history is taken and a complete physical examination made and recorded. Thereafter the nurse, who is employed in connection with the class, visits the new member in his own home, examines the house and locality, obtains the social history of the case, ascertains the exact financial condition, and gives what instruction may be necessary to prevent the spread of the disease. Visits are repeated daily, or at short intervals, until the details of the treatment are understood and followed. An out-of-door life is insisted on, the patient resting during the day in a reclining chair which is supplied to him, and sleeping at night in a tent placed either on the roof or on the ground near the house.

The prescribed diet consists chiefly of milk, bread, fruit, butter, and oil. The exact amount of exercise is prescribed.

Periodical record books are kept, in which the patient notes every detail of the day: the food eaten, the number of hours out-of-doors, the duration of his walks, the temperature and pulse-rate, and the quantity and character of the expectoration.

At a weekly meeting of the class the record books are inspected, and the patient's weight, temperature, pulse, and vital capacity are noted. Once a month the lungs and sputum are re-examined.

At the date of reporting, the nine patients who had been members of the class for three months or more all showed a gain in weight, and all but two showed improvement in their general condition. In five of the nine cases the disease had been arrested.

[Treatment of phthisis on these lines may be practicable in our country towns and villages, where, as in most American cities, the houses, even in the poorest quarters, do not as a rule exceed two storeys in height and have a strip of ground adjoining; its application to dwellers in tenements, such as we have in Glasgow, appears to be impossible.—R. F.]

DISEASES OF CHILDREN.

By LEONARD FINDLAY, M.D.

Effect of Alcoholic Dextrins in Some Cases of Marasmus.
By W. Langford Symes, M.D. (*British Journal of Children's Diseases*, July, 1906).—In this paper are reported some extraordinary results in the treatment of infantile marasmus with alcoholic dextrins, *e.g.*, Guinness' XXX stout. The author restricts the discussion to those cases which most likely owe their origin to some defective assimilative power, leaving out of consideration such as result from tuberculosis, syphilis, &c., and also those cases which depend on some error in feeding. There are instances, however, and that even in good families, where scrupulous care with the dietary has been taken, and yet, from some unknown cause, the child steadily emaciates. It is in these cases where all efforts at feeding may have failed (breast milk, modified cow's milk, asses' milk, wine whey, &c., &c., have all been tried with like failure) that the author has found the administration of Guinness' stout of such value in arresting the wasting and even in saving life. The beneficial effect of this substance is due, he believes, to the ease with which it is digested and absorbed. Stout is an extract of malt, containing abundant carbohydrates in the form of soluble dextrins, with about 5 per cent alcohol. It contains neither starch nor sugar. It may be given alone, mixed with the feeds, or in

addition to breast milk. In any of these ways children do not seem to find it unpleasant. The author advises its administration in such a combination as the following, which, he says, at least in his hands, has never been attended by vomiting, hiccough, flatulence, or diarrhœa :—

Guinness' XXX stout,	. . . . .	$\frac{1}{2}$ oz.
Hot water,	. . . . .	$\frac{1}{2}$ oz.
Cream,	. . . . .	$\frac{1}{2}$ dr. to 1 dr.
Raw beef juice,	. . . . .	2 dr. to 3 dr.
A little sugar.		

In illustration of the beneficial effect of this food he reports in detail three cases. In all there had been persistent vomiting and diarrhœa with wasting, and that in spite of careful and modified dieting. After the administration of stout, however, either as in the above or some similar combination, the children commenced to improve, and all made a steady and rapid recovery.

Duodenal Ulcer in a Suckling (*Jahrb. f. Kind.*, May, 1906, pp. 563, 570).—Torday reports the case of an emaciated and rachitic infant of 8 months, who came under observation for the first time on 4th March, 1905. Owing to the child being an orphan no history of the case prior to his admission to hospital could be obtained. From the first the child vomited about one quarter of an hour after each feed, and, in spite of careful feeding, lavage of the stomach, and the administration of narcotics, the vomiting continued. The vomited material, as a rule, was in excess of the amount of food taken, and at first contained free HCl, but later on this disappeared while lactic acid showed itself. There was marked constipation. Enemata resulted in the passage of a semi-solid grumous material, which did not show any trace of blood. Physical examination of the abdomen revealed great dilatation of the stomach, with visible peristalsis, but no induration could be detected in the pyloric region. The child gradually but steadily got worse, and, developing a broncho-pneumonia, died on 18th April, 1906. Though the child was then 10 months old, he only weighed 6·38 lb.

At the autopsy, in addition to the broncho-pneumonia, there was discovered a duodenal ulcer. In shape it was round, having a diameter of 8 mm., and was situated about 5 mm. beyond the pylorus. Its walls were smooth, soft, and pale, and the floor for the most part had cicatrised. In the centre, however, there was a small recent ulcer marked by a hæmorrhagic point. In the duodenum distal to the ulcer there was much blood, but as the jejunum was reached this blood diminished in amount.

The author, in discussing the case, remarks on the symptomatology simulating that of functional pyloric stenosis, which, as a matter of fact, was more than suspected during life. There never had been any blood either in the motions or vomit, and it is just possible that, had the hæmorrhage been less sudden, blood might have appeared externally and permitted of a correct diagnosis of the case. Torday also animadverts on the rarity of the condition and its apparent difficulty of diagnosis, as in the majority of published cases the ulcer has been a *post-mortem* discovery.

Note on the Size of the Spleen in Rickets.—Drs. John M. Cowan and J. Campbell McClure, in *The British Journal of Children's Diseases* for August, 1906, give the result of an investigation which they have recently carried out on the above subject at the Dispensary of the Royal Hospital for Sick Children, Glasgow. They examined altogether four hundred and seventeen consecutive cases of rickets, and found the spleen palpable in only seventeen or 4·07 per cent. Eight of these seventeen children were in the first year of life, and all, except one, aged 8, were under 4 years. In only eight was the organ really enlarged, and five of these had marked thoracic deformities. In two cases alone was the enlargement notable, and in one the blood examination showed the changes characteristic of splenic anæmia. These authors consider that notable enlargement of the spleen in rachitic children is the

result of causes other than rachitic, the most common of which are splenic anæmia and congenital syphilis.

Three New Cases of Diphtheritic Paralysis Cured by the Serum of Roux. By Dr. J. Comby (*Archives de Médecine des Enfants*, August, 1906).—In addition to the cases previously reported, not only by himself but also by others, Comby records three more remarkable recoveries from this form of paralysis with the use of Roux's serum.

The first case was that of a man, aged 70 years, the subject of chronic aortic endocarditis and arterio-sclerosis, who contracted a sore throat, which was treated merely by gargles and other local measures. From this he made a good recovery, and remained well for three weeks, when he commenced to speak with a nasal twang, and to be troubled with food regurgitating through the nose. Then he developed paresis of the legs, with ataxia and abolition of the knee-jerks. In view of the recent sore throat the case was diagnosed as post-diphtheritic paralysis, and treated accordingly, although at first the question of some vascular lesion of the medulla or cerebrum was raised. On each of the first three days he received 20 c.c. of Roux's serum, and each of the two following days 10 c.c., being a total dose of 80 c.c. The paralysis rapidly disappeared, and the patient completely recovered in eight days. Noteworthy features in this case are (1) the age of the patient, (2) the complications—arterio-sclerosis and syphilis—in spite of which he made a perfect recovery, and suffered from no ill effects of the serum.

Case II was that of a girl, aged 14 years, who had suffered from acute sore throat with membrane, also only treated by means of gargles and local measures. Shortly afterwards symptoms of palatal and ocular paralyses showed themselves. These complications disappeared spontaneously, and it was thought that the child had made a good recovery. Eleven days afterwards, however, or two months after the pharyngitis, she commenced to get feeble and to experience difficulty in walking, which rapidly increased in severity, and terminated in complete general paralysis. On her admission to hospital she was pale and languid, was unable to stand, and while in the recumbent posture could not elevate her legs. There was also marked paresis of both arms. Both knee-jerks were absent. There was no implication, however, of the sphincters or sensation. The muscles, especially the sacro-lumbar and the extensors of the toes, showed almost a total absence of irritability to both the faradic and galvanic currents. This patient was also treated by Roux's serum, receiving on each of the first two days 20 c.c., and on the next three consecutive days 10 c.c.—in all, 70 c.c. After the first two injections the child was distinctly better, being able to move herself slightly in bed; five days later she could sit up, and fourteen days afterwards she could get out and in bed without aid. On her dismissal from hospital, eight weeks after admission, the patellar and Achilles tendon reflexes had not returned, but the muscles gave practically normal responses to electricity.

The third patient was a little girl, aged 4 years. She was pale and emaciated, and while lying in bed was unable to raise herself. The voice had a nasal tone, and there was always coughing after drinking. The reflexes were completely abolished, but sensation and the sphincters were unimpaired. The paresis had commenced eight days previously, and though a history of sore throat was only obtained at a later date, the diagnosis of post-diphtheritic paralysis was formulated, and the case treated accordingly. She received in all 70 c.c. of Roux's serum—20 c.c. on each of the first two days, and on each of the three following days 10 c.c. Three days after the commencement of the serum treatment the child began to improve, and very soon was able to run about.

In discussing these cases the author remarks on the great improvement in the general condition of the patients. Prior to the commencement of the treatment the patients are pale, emaciated, and languid—in short, cachectic, as if suffering from some severe intoxication; but all these symptoms disappear with the paresis, showing the efficacy of the serum, even when the paralysis

has developed, as in Case II, as late as two months after the angina. In this patient there was a progressive general paralysis arrested by the first injection, and in several days completely cured. Moreover, in spite of the heroic serum-therapy, there was only a slight and passing albuminuria, and a more transient morbilliform eruption, as evidence of the serum toxic effect.

In conclusion the author states that—

1. Diphtheritic paralyses, early or late, limited to the palate or extending to the limbs, are curable by the injection of Roux's serum.

2. The injections should be made in series, 10 to 20 c.c. daily, according to age, and repeated on three, four, or five occasions.

3. A total dose of 60, 80, or 100 c.c. can be given without danger.

4. Whether the patient has had serum at time of sore throat or not, serum-therapy should always be practised in the presence of paralysis.

5. The published results demonstrate the marvellous efficacy, and at the same time safety, of this treatment, serum-toxic symptoms being slight and speedily recovered from.

Books, Pamphlets, &c., Received.

Lectures on Diseases of the Lungs, by James Alexander Lindsay, M.D., F.R.C.P.Lond., M.A. Second Edition, Enlarged and Re-written. London: Baillière, Tindall & Cox. 1906. (10s. 6d. net.)

Clinical Lectures on Enlargement of the Prostate, with a Description of the Author's Operation of Total Enucleation of the Organ, by P. J. Freyer, M.A., M.D., M.Ch. Third Edition. London: Baillière, Tindall & Cox. 1906. (6s. net.)

The Influence of the Menstrual Function on certain Diseases of the Skin, by L. Duncan Buckley, A.M., M.D. London: Rebman, Limited. 1906. (5s. net.)

On Retro-peritoneal Hernia, by B. G. A. Moynihan, M.S., F.R.C.S. Second Edition. Revised and in part Re-written by the Author and J. F. Dobson, M.S., F.R.C.S. London: Baillière, Tindall & Cox. 1906. (7s. 6d. net.)

The Röntgen Rays in the Diagnosis of Diseases of the Chest, by Hugh Walsham, M.A., M.D.Cantab., and G. Harrison Orton, M.A., M.D.Cantab. With 18 Plates and 22 Illustrations in the Text. London: H. K. Lewis. 1906. (6s. net.)

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. II: Bread to Ear. Edinburgh: William Green & Sons.

The Illustrated Medical Dictionary, by W. A. Newman Dorland, A.M., M.D. Fourth Edition, Revised and Enlarged. London: W. B. Saunders Company. 1906. (19s. net.)

Medical Diagnosis: A Manual of Clinical Methods for Practitioners and Students. Fifth Edition, greatly Enlarged and Revised to date. By J. J. Graham Brown, M.D., F.R.C.P.E., F.R.S.E., and W. T. Ritchie, M.D., F.R.C.P.E., F.R.S.E. With 200 Illustrations and 8 Full-page Plates. Edinburgh: William Green & Sons. 1906. (8s. net.)

- The Practical Medicine Series, comprising Ten Volumes on the Year's Progress in Medicine and Surgery, under the general editorial charge of Gustavus P. Head, M.D. Series 1906. Vols. I and VI: General Medicine, Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, A.M., M.D. Vol. II: General Surgery, Edited by John B. Murphy, A.M., M.D., LL.D. Vol. III: The Eye, Ear, Throat, and Nose, Edited by Casey A. Wood, C.M., M.D., D.C.L., Albert H. Andrews, M.D., and Gustavus P. Head, M.D. Vol. IV: Gynecology, Edited by Emilius C. Dudley, M.A., M.D., and C. von Bachellé, M.S., M.D. Vol. V: Obstetrics, Edited by Joseph B. D. Lee, A.M., M.D. Vol. VII: Pediatrics, Edited by Isaac A. Abt, M.D.; Orthopedic Surgery, Edited by John Ridlon, A.M., M.D., with the Collaboration of Gilbert L. Bailey, M.D. Chicago: The Year Book Publishers. Glasgow: G. Gillies & Co. (Vols. I and VI, 5s. each; Vol. II, 8s.; Vol. III, 6s.; Vol. V, 5s.)
- High Frequency Currents: Their Production, Physical Properties, Physiological Effects, and Therapeutical Uses, by H. Evelyn Crook, M.D., B.S.Lond., F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906. (7s. 6d. net.)
- The Uses of X-Rays in General Practice, by R. Higham Cooper, L.S.A. London: Baillière, Tindall & Co. 1906. (2s. 6d. net.)
- Minor Maladies and Their Treatment, by Leonard Williams, M.D., M.R.C.P. London: Baillière, Tindall & Cox. 1906. (5s. net.)
- Dissections Illustrated: A Graphic Handbook for Students of Human Anatomy, by C. Gordon Brodie, F.R.C.S. With Plates Drawn and Lithographed by Percy Highley. In 73 Coloured Plates and 37 Diagrams. Second Edition Revised. London: Whittaker & Co. 1906. (25s. net.)
- Outlines of the Diseases of Women, by John Phillips, M.A., M.D.Cantab., F.R.C.P. With 121 Illustrations and Two Appendices. Fourth Edition, Revised and Enlarged. London: Charles Griffin & Co., Limited. 1906. (7s. 6d.)
- The Sigmoidoscope: A Clinical Handbook on the Examination of the Rectum and Pelvic Colon, by P. Lockhart Mummery, B.C.Cantab., F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1906. (3s. 6d. net.)
- Helouan, an Egyptian Health Resort, and How to Reach it, by H. Overton Hobson, M.D.Edin. With 35 Illustrations and 2 Maps. London: Longmans, Green & Co. 1906. (2s. 6d. net.)
- Davos as Health Resort. With 6 Chromotype Reproductions of Water-colour Paintings, and 44 other Illustrations. Davos (Switzerland): Davis Printing Co. 1906.
- Æquanimitas, with other Addresses to Medical Students, Nurses, and Practitioners of Medicine, by William Osler, M.D., F.R.S. Second Edition, with Three Additional Addresses. London: H. K. Lewis. 1906. (8s.)

Pulmonary Phthisis: Its Diagnosis, Prognosis, and Treatment, by H. Hyslop Thomson, M.D. London: John Bale, Sons, & Danielsson, Limited. 1906. (5s. net.)

The following, published by J. F. Bergmann, Wiesbaden, are obtainable from F. Bauermeister, 49 Gordon Street, Glasgow:—

Handbuch der Geburtshülfe, in drei Bänden Herausgegeben von F. von Winckel, in München. Dritter Band, I. Teil. Mit zahlreichen Abbildungen im Text. Dritter Band, II. Teil. Mit zahlreichen Abbildungen im Text und auf den Tafeln, I-X. 1906. (I, £1, 2s. 9d.; II, £1, 8s.)

Lehrbuch der Ohrenheilkunde für Ärzte und Studierende, in 32 Vorträgen, von Dr. Friedrich Bezold. Mit 75 Textabbildungen und einer Tafel Trommelfellbilder. 1906. (9s.)

Ueber Augenerkrankungen sexuellen Ursprunges bei Frauen, von Dr. Emil Berger und Dr. Robert Loewy. Deutsche, zum Teile neubearbeitete Ausgabe. Uebersetzt von Dr. Beatrice Rossbach. 1906. (4s.)

Die Natur und Behandlung der Gicht, von Dr. Wilhelm Ebstein. Zweite, stark vermehrte Auflage. Mit 35 Abbildungen und einer Temperaturkurve. 1906. (10s. 9d.)

Die Neurologie des Auges: ein Handbuch für Nerven- und Augenärzte, von Dr. H. Wilbrand und Dr. A. Saenger. Dritter Band. Zweite Hälfte. Mit zahlreichen Textabbildungen und 6 Tafeln. 1906. (£1, 2s. 6d.)

Stimmbildung und Stimmpflege, Gemeinverständliche Vorlesungen, gehalten von Dr. med. Hermann Gutzmann. Mit 52 Figuren. 1906. (2s. 9d.)

Grundriss der medikamentösen Therapie der Magen- und Darmkrankheiten einschliesslich Grundzüge der Diagnostik. Zweite, durch Einfügung der speziellen Diätetik der Magen- und Darmkrankheiten vermehrte Ausgabe. Für praktische Ärzte bearbeitet, von Dr. med. P. Rodari. 1906. (4s. 10d.)

Die Krankheiten des Magens und ihre Behandlung, Klinische Vorträge für Studierende und Ärzte, von Dr. Louis Bourget. Mit 2 Tafeln, Abbildungen im Text und Tabellen. 1906. (4s. 9d.)

Diagnose der Chirurgischen Nierenerkrankungen unter Verwertung der Chromocystoskopie, von Dr. Fritz Voelcker. Mit 50 Abbildungen im Text. 1906. (4s. 9d.)

Ueber die Geographische Verbreitung und die Diagnose des Ulcus Ventriculi Rotundum, mit Besonderer Berücksichtigung des Chemischen Verhaltens des Magensaftes und der Occulten Blutungen. Ein Beitrag zum regionären klinischen Verhalten des Magengeschwürs, von Dr. L. Rütimeyer. 1906. (3s. 9d.)

Die Vorgeschichte der Menschheit im Lichte unserer entwicklungsgeschichtlichen Kenntnisse, von Dr. E. Müller de la Fuente. Mit Abbildungen im Text. 1906. (2s. 9d.)

**GLASGOW.—METEOROLOGICAL AND VITAL STATISTICS FOR
THE FOUR WEEKS ENDING 24TH NOVEMBER, 1906.**

	WEEK ENDING			
	Nov. 3.	Nov. 10.	Nov. 17.	Nov. 24.
Mean temperature, . . .	44·7°	42·4°	42·5°	46·0°
Mean range of temperature between day and night, . .	28·0°	22·2°	15·3°	27·8°
Number of days on which rain fell,	7	3	4	4
Amount of rainfall, . ins.	1·52	0·56	1·48	0·25
Deaths registered,	260	303	266	309
Death-rates,	16·2	18·9	16·6	19·3
Zymotic death-rates, . . .	1·2	1·1	1·3	1·4
Pulmonary death-rates, . .	3·9	4·9	4·6	4·8
DEATHS—				
Under 1 year,	46	67	73	83
60 years and upwards, . .	68	81	47	60
DEATHS FROM—				
Small-pox, . . . . .	...	...	...	...
Measles,	2	...	1	...
Scarlet fever,	3	1	1	2
Diphtheria,	6	3	2	1
Whooping-cough,	3	7	10	7
{ Fever,	3	2	1	1
{ Cerebro-spinal fever, . . .	5	4	10	4
Diarrhœa,	12	9	14	15
Croup and laryngitis, . . .	...	...	1	1
Bronchitis, pneumonia, and pleurisy,	51	55	58	70
CASES REPORTED—				
Small-pox, . . . . .	...	...	...	...
Cerebro-spinal meningitis, .	...	6	8	5
Diphtheria and membranous croup,	33	22	17	9
Erysipelas,	30	18	29	36
Scarlet fever,	41	49	37	40
Typhus fever, . . . . .	...	...	...	...
Enteric fever,	5	7	4	9
Continued fever, . . . . .	...	...	...	...
Puerperal fever,	4	2	2	3
Measles,†	10	23	26	6

† Measles not notifiable.

SANITARY CHAMBERS,
GLASGOW, 30th November, 1906.

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